#### (19) World Intellectual Property Organization International Bureau



# | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901| | 1901

# (43) International Publication Date 2 October 2003 (02.10.2003)

#### **PCT**

# (10) International Publication Number WO 03/080576 A2

- (51) International Patent Classification7: C07D 213/82, A01N 43/40
- (21) International Application Number: PCT/US03/08179
- (22) International Filing Date: 18 March 2003 (18.03.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/365,765

19 March 2002 (19.03.2002) US

- (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).
- (71) Applicant and
- (72) Inventor: FOOR, Stephen, Ray [US/US]; 508 Hemingway Drive, Hockessin, DE 19707 (US).
- (74) Agent: HEISER, David, E.; E.I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, DE 19805 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- of inventorship (Rule 4.17(iv)) for US only

#### Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PYRIDINYL AMIDES AND ADVANTAGEOUS COMPOSITIONS THEREOF FOR USE AS FUNGICIDES

 $(R^5)_{\overline{m}} \underbrace{\begin{pmatrix} 4 \\ N \end{pmatrix}_{R^1}}_{R^2} \underbrace{\begin{pmatrix} 4 \\ N \end{pmatrix}}_{R^5} \underbrace{\begin{pmatrix} 5 \\ N \end{pmatrix}}_{R^6} (R^6)_{n}$ 

(57) Abstract: Compositions for controlling plant diseases caused by fungal plant pathogens are described, comprising:(a) at least one compound of Formula I, including all geometric and stereoisomers, N-oxides and agriculturally suitable salts thereof: (I) wherein  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^6$ , m and n are as defined in the disclosure; and(b) at least one compound selected from the group consisting of (b1) alkylenebis(dithiocarbamate) fungicides; (b2) compounds acting at the  $bc_1$  complex of the fungal mitochondrial respiratory electron transfer site; (b3) cymoxanil; (b4) compounds acting at the demethylase enzyme of the sterol biosynthesis pathway; (b5) morpholine and piperidine compounds that

act on the sterol biosynthesis pathway; (b6) phenylamide fungicides; (b7) pyrimidinone fungicides; (b8) phthalimides; and (b9) fosetyl-aluminum. Also disclosed are methods for controlling plant diseases caused by fungal plant pathogens that involves applying an effective amount of the combinations described. Also disclosed are certain novel compounds of Formula I.

1

#### TITLE

# PYRIDINYL AMIDES AND ADVANTAGEOUS COMPOSITIONS THEREOF FOR USE AS FUNGICIDES

#### **BACKGROUND OF THE INVENTION**

This invention relates to certain pyridinyl amides, their N-oxides, agriculturally suitable salts, certain advantageous compositions containing a mixture of pyridinyl amides and other fungicides and methods of their use as fungicides.

The control of plant diseases caused by fungal plant pathogens is extremely important in achieving high crop efficiency. Plant disease damage to ornamental, vegetable, field, cereal, and fruit crops can cause significant reduction in productivity and thereby result in increased costs to the consumer. Many products are commercially available for these purposes, but the need continues for new products that are more effective, less costly, less toxic, or environmentally safer.

WO 01/11966 discloses certain pyridinyl amides of formula i as fungicides

$$A \stackrel{R^3}{\underset{R^1 \quad R^2}{\bigvee}} A^2$$

wherein, among others,

A<sup>1</sup> is 2-pyridyl substituted by up to four groups at least one of which is haloalkyl;

A<sup>2</sup> is optionally substitted heterocyclyl;

R<sup>1</sup> and R<sup>2</sup> are independently H, alkyl or acyl;

R<sup>3</sup> is H or alkyl; and
L is -(C=O)-, -SO<sub>2</sub>- or -(C=S)-.

15

20

25

30

5

10

Fungicides that effectively control plant fungi, particularly of the class Oomycetes, such as *Phytophthora* spp. and *Plasmopara* spp., are in constant demand by growers. Combinations of fungicides are often used to facilitate disease control and to retard resistance development. It is desirable to enhance the activity spectrum and the efficacy of disease control by using mixtures of active ingredients that provide a combination of curative, systemic and preventative control of plant pathogens. Also desirable are combinations that provide greater residual control to allow for extended spray intervals. It is also very desirable to combine fungicidal agents that inhibit different biochemical pathways in the fungal pathogens to retard development of resistance to any one particular plant disease control agent.

It is in all cases particularly advantageous to be able to decrease the quantity of chemical agents released in the environment while ensuring effective protection of crops from diseases caused by plant pathogens. Mixtures of fungicides may provide significantly better disease control than could be predicted based on the activity of the individual components. This synergism has been described as "the cooperative action of two components of a mixture, such that the total effect is greater or more prolonged than the sum

of the effects of the two (or more) taken independently" (see Tames, P. M. L., Neth. J. Plant Pathology, (1964), 70, 73-80).

There is a desire to find fungicidal agents that are particularly advantageous in achieving one or more of the preceding objectives.

#### SUMMARY OF THE INVENTION

This invention provides a composition for controlling plant diseases caused by fungal plant pathogens comprising (a) at least one compound of Formula I (including all geometric and stereoisomers), N-oxides and agriculturally suitable salts thereof:

$$(R^5)_{\overline{m}} \xrightarrow{6} N \xrightarrow{R^1} R^2 \xrightarrow{1} X \xrightarrow{1}$$

#### 10 wherein

15

20

25

5

 $R^1$  and  $R^2$  are each independently H or  $C_1$ - $C_6$  alkyl;

each R<sup>5</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylthio, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>8</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub> alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>8</sub> dialkylaminocarbonyl or C<sub>3</sub>-C<sub>6</sub> trialkylsilyl;

each R<sup>6</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylthio, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>6</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub> alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>8</sub> dialkylsilyl; and

m and n are independently 1, 2, 3 or 4; and

- (b) at least one compound selected from the group consisting of
- 30 (b1) alkylenebis(dithiocarbamate) fungicides;

10

- (b2) compounds acting at the  $bc_1$  complex of the fungal mitochondrial respiratory electron transfer site;
  - (b3) cymoxanil;
  - (b4) compounds acting at the demethylase enzyme of the sterol biosynthesis pathway;
  - (b5) morpholine and piperidine compounds that act on the sterol biosynthesis pathway;
  - (b6) phenylamide fungicides;
  - (b7) pyrimidinone fungicides;
  - (b8) phthalimides; and
  - (b9) fosetyl-aluminum

This invention also relates to compounds of Formula I wherein at least one R<sup>6</sup> is iodo.

This invention also relates to a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of a compound or composition of the invention.

### **DETAILS OF THE INVENTION**

In the above recitations, the term "alkyl", used either alone or in compound words such 15 as "alkylthio" or "haloalkyl" includes straight-chain or branched alkyl, such as, methyl, ethyl, n-propyl, i-propyl, or the different butyl, pentyl or hexyl isomers. "Alkenyl" includes straight chain or branched alkenes such as ethenyl, 1-propenyl, 2-propenyl, and the different butenyl, pentenyl and hexenyl isomers. "Alkenyl" also includes polyenes such as 1,2-propadienyl and 2,4-hexadienyl. "Alkynyl" includes straight chain or branched alkynes. 20 such as ethynyl, 1-propynyl, 2-propynyl and the different butynyl, pentynyl and hexynyl isomers. "Alkynyl" can also include moieties comprised of multiple triple bonds such as 2.5-hexadiynyl. "Alkoxy" includes, for example, methoxy, ethoxy, n-propyloxy, isopropyloxy and the different butoxy, pentoxy and hexyloxy isomers. "Alkoxyalkyl" denotes alkoxy substitution on alkyl. Examples of "alkoxyalkyl" include CH3OCH2, 25 CH<sub>3</sub>OCH<sub>2</sub>CH<sub>2</sub>, CH<sub>3</sub>CH<sub>2</sub>OCH<sub>2</sub>, CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub> and CH<sub>3</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>. "Alkoxyalkoxy" denotes alkoxy substitution on alkoxy. The term "Alkenyloxy" includes straight chain or branched alkenyloxy moieties. Examples of "alkenyloxy" include H<sub>2</sub>C=CHCH<sub>2</sub>O, (CH<sub>3</sub>)<sub>2</sub>C=CHCH<sub>2</sub>O, (CH<sub>3</sub>)CH=CHCH<sub>2</sub>O, (CH<sub>3</sub>)CH=C(CH<sub>3</sub>)CH<sub>2</sub>O and CH<sub>2</sub>=CHCH<sub>2</sub>CH<sub>2</sub>O. "Alkynyloxy" includes straight chain or branched alkynyloxy 30 moieties. Examples of "alkynyloxy" include HC≡CCH2O, CH3C≡CCH2O and CH<sub>3</sub>C≡CCH<sub>2</sub>CH<sub>2</sub>O. "Alkylthio" includes branched or straight chain alkylthio moieties such as methylthio, ethylthio, and the different propylthio, butylthio, pentylthio and hexylthio isomers. "Alkylthioalkyl" denotes alkylthio substitution on alkyl. Examples of "alkylthioalkyl" include CH3SCH2, CH3SCH2CH2, CH3CH2SCH2, CH3CH2CH2CH2SCH2 35 and CH<sub>3</sub>CH<sub>2</sub>SCH<sub>2</sub>CH<sub>2</sub>. "Alkylthioalkoxy" denotes alkylthio substitution on alkoxy. "Alkylsulfinyl" includes both enantiomers of an alkylsulfinyl group. Examples of

4

"alkylsulfinyl" include CH<sub>3</sub>S(O), CH<sub>3</sub>CH<sub>2</sub>S(O), CH<sub>3</sub>CH<sub>2</sub>CO), (CH<sub>3</sub>)<sub>2</sub>CHS(O) and the different butylsulfinyl, pentylsulfinyl and hexylsulfinyl isomers. Examples of "alkylsulfonyl" include CH<sub>3</sub>S(O)<sub>2</sub>, CH<sub>3</sub>CH<sub>2</sub>S(O)<sub>2</sub>, CH<sub>3</sub>CH<sub>2</sub>CO)<sub>2</sub>, (CH<sub>3</sub>)<sub>2</sub>CHS(O)<sub>2</sub> and the different butylsulfonyl, pentylsulfonyl and hexylsulfonyl isomers. "Alkylamino", "dialkylamino", "alkenylthio", "alkenylsulfinyl", "alkenylsulfonyl", "alkynylthio", "alkynylsulfinyl", "alkynylsulfinyl", and the like, are defined analogously to the above examples. "Cycloalkyl" includes, for example, cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl. The term "cycloalkoxy" includes the same groups linked through an oxygen atom such as cyclopentyloxy and cyclohexyloxy.

10

15

20

25

30

35

The term "halogen", either alone or in compound words such as "haloalkyl", includes fluorine, chlorine, bromine or iodine. Further, when used in compound words such as "haloalkyl", said alkyl may be partially or fully substituted with halogen atoms which may be the same or different. Examples of "haloalkyl" include F<sub>3</sub>C, ClCH<sub>2</sub>, CF<sub>3</sub>CH<sub>2</sub> and CF<sub>3</sub>CCl<sub>2</sub>. The terms "haloalkenyl", "haloalkynyl", "haloalkoxy", "haloalkylthio", and the like, are defined analogously to the term "haloalkyl". Examples of "haloalkenyl" include (Cl)<sub>2</sub>C=CHCH<sub>2</sub> and CF<sub>3</sub>CH<sub>2</sub>CH=CHCH<sub>2</sub>. Examples of "haloalkynyl" include HC≡CCHCl, CF<sub>3</sub>C≡C, CCl<sub>3</sub>C≡C and FCH<sub>2</sub>C≡CCH<sub>2</sub>. Examples of "haloalkoxy" include CF<sub>3</sub>O, CCl<sub>3</sub>CH<sub>2</sub>O, HCF<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>O and CF<sub>3</sub>CH<sub>2</sub>O. Examples of "haloalkylthio" include CCl<sub>3</sub>S, CF<sub>3</sub>S, CCl<sub>3</sub>CH<sub>2</sub>S and ClCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>S. Examples of "haloalkylsulfinyl" include CF<sub>3</sub>S(O), CCl<sub>3</sub>S(O), CF<sub>3</sub>CH<sub>2</sub>S(O) and CF<sub>3</sub>CF<sub>2</sub>S(O). Examples of "haloalkylsulfonyl" include CF<sub>3</sub>S(O)<sub>2</sub>, CCl<sub>3</sub>S(O)<sub>2</sub>, CF<sub>3</sub>CH<sub>2</sub>S(O)<sub>2</sub> and CF<sub>3</sub>CF<sub>2</sub>S(O)<sub>2</sub>. Examples of "haloalkoxyalkoxy" include CF<sub>3</sub>OCH<sub>2</sub>O, ClCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>O, Cl<sub>3</sub>CCH<sub>2</sub>OCH<sub>2</sub>O as well as branched alkyl derivatives. Examples of "alkylcarbonyl" include C(O)CH<sub>3</sub>, C(O)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub> and C(O)CH(CH<sub>3</sub>)<sub>2</sub>. Examples of "alkoxycarbonyl" include CH<sub>3</sub>OC(=O), CH<sub>3</sub>CH<sub>2</sub>OC(=O), CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OC(=0), (CH<sub>3</sub>)<sub>2</sub>CHOC(=0) and the different butoxy- or pentoxycarbonyl isomers.

One skilled in the art will appreciate that not all nitrogen containing heterocycles can form N-oxides since the nitrogen requires an available lone pair for oxidation to the oxide; one skilled in the art will recognize those nitrogen containing heterocycles which can form N-oxides. One skilled in the art will also recognize that tertiary amines can form N-oxides. Synthetic methods for the preparation of N-oxides of heterocycles and tertiary amines are very well known by one skilled in the art including the oxidation of heterocycles and tertiary amines with peroxy acids such as peracetic and m-chloroperbenzoic acid (MCPBA), hydrogen peroxide, alkyl hydroperoxides such as t-butyl hydroperoxide, sodium perborate, and dioxiranes such as dimethydioxirane. These methods for the preparation of N-oxides have been extensively described and reviewed in the literature, see for example:

T. L. Gilchrist in Comprehensive Organic Synthesis, vol. 7, pp 748-750, S. V. Ley, Ed., Pergamon Press; M. Tisler and B. Stanovnik in Comprehensive Heterocyclic Chemistry, vol.

10

15

20

25

30

35

3, pp 18-20, A. J. Boulton and A. McKillop, Eds., Pergamon Press; M. R. Grimmett and B. R. T. Keene in Advances in Heterocyclic Chemistry, vol. 43, pp 149-161, A. R. Katritzky, Ed., Academic Press; M. Tisler and B. Stanovnik in Advances in Heterocyclic Chemistry, vol. 9, pp 285-291, A. R. Katritzky and A. J. Boulton, Eds., Academic Press; and G. W. H. Cheeseman and E. S. G. Werstiuk in Advances in Heterocyclic Chemistry, vol. 22, pp 390-392, A. R. Katritzky and A. J. Boulton, Eds., Academic Press.

The total number of carbon atoms in a substituent group is indicated by the "C<sub>i</sub>-C<sub>j</sub>" prefix where i and j are numbers from 1 to 8. For example, C<sub>1</sub>-C<sub>3</sub> alkylsulfonyl designates methylsulfonyl through propylsulfonyl; C<sub>2</sub> alkoxyalkyl designates CH<sub>3</sub>OCH<sub>2</sub>; C<sub>3</sub> alkoxyalkyl designates, for example, CH<sub>3</sub>CH(OCH<sub>3</sub>), CH<sub>3</sub>OCH<sub>2</sub>CH<sub>2</sub> or CH<sub>3</sub>CH<sub>2</sub>OCH<sub>2</sub>; and C<sub>4</sub> alkoxyalkyl designates the various isomers of an alkyl group substituted with an alkoxy group containing a total of four carbon atoms, examples including CH<sub>3</sub>CH<sub>2</sub>OCH<sub>2</sub> and CH<sub>3</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>.

When a compound is substituted with a substituent bearing a subscript that indicates the number of said substituents can exceed 1, said substituents (when they exceed 1) are independently selected from the group of defined substituents. Further, when the subscript indicates a range, e.g. (R)<sub>i-j</sub>, then the number of substituents may be selected from the integers between i and j inclusive. The term "optionally substituted with one to three substituents" and the like indicates that one to three of the available positions on the group may be substituted.

When a group contains a substituent which can be hydrogen, for example R<sup>1</sup> or R<sup>2</sup> then, when this substituent is taken as hydrogen, it is recognized that this is equivalent to said group being unsubstituted.

Compounds of Formula I can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers and geometric isomers. One skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. Accordingly, the present invention comprises compounds selected from Formula I, N-oxides and agriculturally suitable salts thereof. The compounds of Formula I may be present as a mixture of stereoisomers, individual stereoisomers, or as an optically active form. In particular, when R<sup>1</sup> and R<sup>2</sup> of Formula I are different, then said Formula possesses a chiral center at the carbon to which R<sup>1</sup> and R<sup>2</sup> are commonly bonded.

. This invention includes racemic mixtures of equal parts of Formula I' and Formula I'.

6

wherein A is a 2-pyridinyl group substituted with  $(R^5)_m$  and B is a 3-pyridinyl group substituted with  $(R^6)_n$ , and  $R^5$ ,  $R^6$ , m and n are as defined above.

In addition, this invention includes compounds and compositions that are enriched compared to the racemic mixture in an enantiomer of the Formula I' or Formula I'. Included are compounds and compositions involving the essentially pure enantiomers of Formula I' or Formula I'. For example, this invention also includes compounds of Formula I wherein at least one R<sup>6</sup> is iodo that are enriched compared to the racemic mixture in an enantiomer of the Formula I'. Included are the essentially pure enantiomers of Formula I'. This invention also includes compositions wherein component (a) is enriched in a component (a) enantiomer of Formula I compared to the racemic mixture. This invention also includes compounds of Formula I wherein at least one R<sup>6</sup> is iodo that are enriched compared to the racemic mixture in an enantiomer of the Formula I''. Included are the essentially pure enantiomers of Formula I''. This invention also includes compositions wherein component (a) is enriched in a component (a) enantiomer of Formula I'' compared to the racemic mixture.

5

10

15

20

25

30

When enantiomerically enriched, one enantiomer is present in greater amounts that the other and the extent of enrichment can be defined by an expression of enantiomer excess("ee"), which is defined as 100(2x-1) where x is the mole fraction of the dominant enantiomer in the enantiomer mixture (e.g., an ee of 20% corresponds to a 60:40 ratio of enantiomers).

The more active enantiomer with respect to the relative positions of R<sup>1</sup>, R<sup>2</sup>, A and the rest of the molecule bonded through nitrogen corresponds to the configuration of the enantiomer that, when in a solution of CDCl<sub>3</sub>, rotates plane polarized light in the (+) or dextro direction.

Preferably there is at least a 50% enantiomeric excess; more preferably at least a 75% enantiomeric excess; still more preferably at least a 90% enantiomeric excess; and the most preferably at least a 94% enantiomeric excess of the more active isomer of Formula I. Of particular note are enantiomerically pure embodiments of the more active isomer of Formula I.

The salts of the compounds of Formula I include acid-addition salts with inorganic or organic acids such as hydrobromic, hydrochloric, nitric, phosphoric, sulfuric, acetic, butyric,

15

20

25

fumaric, lactic, maleic, malonic, oxalic, propionic, salicylic, tartaric, 4-toluenesulfonic or valeric acids. The salts of the compounds of Formula I also include those formed with organic bases (e.g., pyridine, ammonia, or triethylamine) or inorganic bases (e.g., hydrides, hydroxides, or carbonates of sodium, potassium, lithium, calcium, magnesium or barium) when the compound contains an acidic group such as a carboxylic acid or phenol.

Preferred compositions of the invention, wherein (a) comprises compounds of Formula I, for reasons of better activity and/or ease of synthesis are:

- Preferred 1. Preferred are compositions wherein in Formula I at least one R<sup>6</sup> located in a position ortho to the link with C=O.
- Preferred 2. Compositions of Preferred 1 wherein there is an R<sup>6</sup> at each position orthoto to the link with C=O, and optionally 1 to 2 additional R<sup>6</sup> and R<sup>6</sup> is either halogen or methyl.

Of note are compositions wherein at least one R<sup>6</sup> is iodo.

Preferred 3. Compositions of Preferred 2 wherein one R<sup>6</sup> is a Cl located at the 2-position ortho to the link with C=O, another R<sup>6</sup> is selected from Cl or methyl and is located at the 4-position ortho to the link with C=O and a third optional R<sup>6</sup> is methyl at the 6-position.

Of note are compounds of Formula I wherein R<sup>5</sup> is Cl, Br, I, CH<sub>3</sub>, OCF<sub>3</sub>, OCHF<sub>2</sub>, OCH<sub>2</sub>CF<sub>3</sub>, OCF<sub>2</sub>CF<sub>2</sub>H, OCHFCF<sub>3</sub>, SCF<sub>3</sub>, SCHF<sub>2</sub>, SCH<sub>2</sub>CF<sub>3</sub>, SCF<sub>2</sub>CF<sub>3</sub>, SCF<sub>2</sub>CF<sub>2</sub>H, SCHFCF<sub>3</sub>, SOCF<sub>3</sub>, SOCHF<sub>2</sub>, SOCH<sub>2</sub>CF<sub>3</sub>, SOCF<sub>2</sub>CF<sub>2</sub>H, SOCHFCF<sub>3</sub>, SO<sub>2</sub>CHF<sub>2</sub>, SO<sub>2</sub>CHF<sub>2</sub>CF<sub>3</sub>, SO<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>H or SO<sub>2</sub>CHFCF<sub>3</sub>.

Preferred compositions of this invention include those of Preferred 1 through Preferred 3 wherein in Formula I one  $\mathbb{R}^5$  is halogen at the 3-position and a second  $\mathbb{R}^5$  is halogen or  $\mathbb{C}_1$ - $\mathbb{C}_6$  haloalkoxy at the 5-position. Of note are compositions comprising compounds of Formula I that are substituted with at least one iodo as  $\mathbb{R}^5$ .

Preferred compositions of this invention include those of Preferred 1 through Preferred 3 wherein R<sup>1</sup> is H and R<sup>2</sup> is H or CH<sub>3</sub>. More preferred are compositions of Preferred 1 through Preferred 3 wherein R<sup>1</sup> is H and R<sup>2</sup> is CH<sub>3</sub>.

30 Specifically preferred are compositions comprising a compound selected from the group consisting of

- 2,4-Dichloro-N-[(3,5-dichloro-2-pyridinyl)methyl]-3-pyridinecarboxamide,
- 2,4-Dichloro-N-[1-(3,5-dichloro-2-pyridinyl)ethyl]-3-pyridinecarboxamide,
- 2,4-Dichloro-N-[(3,5-dichloro-2-pyridinyl)methyl]-6-methyl-3-
- 35 pyridinecarboxamide,
  - 2,4-Dichloro-*N*-[1-(3,5-dichloro-2-pyridinyl)ethyl]-6-methyl-3-pyridinecarboxamide,
  - N-[(5-bromo-3-chloro-2-pyridinyl)methyl]-2,4-dichloro-3-pyridinecarboxamide,

N-[1-(5-bromo-3-chloro-2-pyridinyl)ethyl]-2,4-dichloro-3-pyridinecarboxamide, N-[(5-bromo-3-chloro-2-pyridinyl)methyl]-2,4-dichloro-6-methyl-3-pyridinecarboxamide,

N-[1-(3-chloro-5-iodo-2-pyridinyl)ethyl]-2,4-dichloro-6-methyl-3-pyridinecarboxamide,

N-[(3-chloro-5-iodo-2-pyridinyl)methyl]-2,4-dichloro-3-pyridinecarboxamide,

N-[1-(3-chloro-5-iodo-2-pyridinyl)ethyl]-2,4-dichloro-3-pyridinecarboxamide,

N-[(3-chloro-5-iodo-2-pyridinyl)methyl]-2,4-dichloro-6-methyl-3-

pyridinecarboxamide, and

5

10

15

20

25

30

*N*-[1-(3-chloro-5-iodo-2-pyridinyl)ethyl]-2,4-dichloro-6-methyl-3-pyridinecarboxamide.

This invention also relates to a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of the composition of the invention (i.e., as a composition described herein). The preferred methods of use are those involving the above-preferred compositions.

The compounds of Formula I can be prepared by one or more of the following methods and variations as described in Schemes 1-5. The definitions of A, B, R<sup>1</sup> through R<sup>6</sup> and n in the compounds of Formulas 1-4 below are as defined above. Compounds of Formula 1a, 1b and 1c are subsets of Formula 1. Compounds of Formulae Ia, Ib and Ic are subsets of the compounds of Formula I, and all substituents for Formulae Ia, Ib and Ic are as defined above for Formula I.

As shown in Scheme 1, the compounds of Formula Ia can be prepared by treating amine salts of Formula 1 with an appropriate acid chloride in an inert solvent with two molar equivalents of a base (e.g. triethylamine or potassium carbonate) present. Suitable solvents are selected from the group consisting of ethers such as tetrahydrofuran, dimethoxyethane, or diethyl ether; hydrocarbons such as toluene or benzene; and halocarbons such as dichloromethane or chloroform.

#### Scheme 1

As depicted in Scheme 2, compounds of Formula Ia can be alternatively synthesized by reacting the amine salts of Formula 1 with an appropriate carboxylic acid in the presence of an organic dehydrating reagent such as 1,3-dicyclohexylcarbodiimide (DCC) or 1-[3-

9

(Dimethylamino)propyl]-3-ethylcarbodiimide hydrochloride (EDC). Suitable solvents are selected from the group consisting of ethers such as tetrahydrofuran, dimethoxyethane, or diethyl ether; hydrocarbons such as toluene or benzene; and halocarbons such as dichloromethane or chloroform.

### Scheme 2

5

10

15

As shown in Scheme 3, the amine salts of Formula 1a, wherein A is 2-pyridyl bearing the indicated substituents and R<sup>1</sup> and R<sup>2</sup> are hydrogen, can be prepared by reacting the commercially available imine ester 5 with a 2,3-dichloro-pyridine of Formula 4 in the presence of a strong base such as sodium hydride in a polar, aprotic solvent such as N,N-dimethylformamide followed by heating in acidic medium in a procedure analogous to those found in WO99/42447. Compounds of Formula 1b can be prepared by similar procedures in which the intermediate anion resulting from step 1 is treated with an alkylating agent R<sup>2</sup>-X such as methyl iodide prior to heating in an acidic medium. In the alkylating reagent R<sup>2</sup>-X, X is a suitable leaving group such as halogen (e.g., Br, I), OS(O)<sub>2</sub>CH<sub>3</sub> (methanesulfonate), OS(O)<sub>2</sub>CF<sub>3</sub>, OS(O)<sub>2</sub>Ph-p-CH<sub>3</sub> (p-toluenesulfonate), and the like; methanesulfonate works well. Of note are compounds of 1a, 1b and 4 wherein R<sup>5</sup> is CF<sub>3</sub>.

10

As shown in Scheme 4, compounds of Formula 1c (wherein A is a substituted 2-pyridinyl ring), bearing an aminomethyl group, can be synthesized from nitriles of Formula 2 (wherein A is a substituted 2-pyridinyl ring) by reduction of the nitrile using lithium aluminum hydride (LAH) in toluene.

#### Scheme 4

5

A is a substituted 2-pyridinyl ring

As shown in Scheme 5, compounds of Formula 1c (wherein A is a substituted 2-pyridinyl ring) can be alternatively synthesized by reacting compounds of Formula 3 with ammonia in a protic solvent such as methanol to provide compounds of Formula 1c.

Compounds of Formula 1c can also be prepared by reacting compounds of Formula 3 with a potassium salt of phthalimide followed by reaction with either aminoethanol or hydrazine in an alcohol solvent to provide the desired aminomethyl intermediates of Formula 1c.

11

## Scheme 5

LG is Cl, Br, -OSO<sub>2</sub>Me, -OSO<sub>2</sub>-p-Tol

It is recognized that some reagents and reaction conditions described above for preparing compounds of Formula I may not be compatible with certain functionalities present in the intermediates. In these instances, the incorporation of protection/deprotection sequences or functional group interconversions into the synthesis will aid in obtaining the desired products. The use and choice of the protecting groups will be apparent to one skilled in chemical synthesis (see, for example, Greene, T. W.; Wuts, P. G. M. Protective Groups in Organic Synthesis, 2nd ed.; Wiley: New York, 1991). One skilled in the art will recognize that, in some cases, after the introduction of a given reagent as it is depicted in any individual scheme, it may be necessary to perform additional routine synthetic steps not described in detail to complete the synthesis of compounds of Formula I. One skilled in the art will also recognize that it may be necessary to perform a combination of the steps illustrated in the above schemes in an order other than that implied by the particular sequence presented to prepare the compounds of Formula I.

5

10

15

20

25

One skilled in the art will also recognize that compounds of Formula I and the intermediates described herein can be subjected to various electrophilic, nucleophilic, radical, organometallic, oxidation, and reduction reactions to add substituents or modify existing substituents.

Without further elaboration, it is believed that one skilled in the art using the preceding description can prepare compounds comprising component (a) of the present invention to its fullest extent. The following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except for chromatographic solvent mixtures or where otherwise indicated. Parts and percentages for chromatographic solvent mixtures are by volume unless otherwise indicated. <sup>1</sup>H NMR spectra are reported in ppm downfield from tetramethylsilane; s is singlet, d is doublet,

10

15

20

25

30

35

12

t is triplet, q is quartet, m is multiplet, dd is doublet of doublets, dt is doublet of triplets, br s is broad singlet.

## Example 1

# <u>Preparation of N-[1-(5-bromo-3-chloro-2-pyridinyl)ethyl]-2,4-dichloro-3-pyridinecarboxamide</u>

## Step A: Preparation of 5-bromo-3-chloro-2(1H)-pyridone

A solution of 6.2 g of potassium chlorate in 100 mL of water was added to a solution of 25 g of 5-bromo-2-pyridone in 100 mL concentrated HCl pre-heated to 50 °C to 60 °C to form a thick precipitate that was stirred for 5 min. Then, 60 mL of water was added to facilitate stirring and the mixture was stirred at room temperature overnight. The reaction mixture was filtered, triturated with water (2X), and the precipitate was suction-dried to yield 17.7 g of the title compound as a solid.

<sup>1</sup>H NMR (CDCl<sub>3</sub>): δ 7.53 (d, 1H, J is 2.6Hz), 7.75 (d, 1H, J is 2.5 Hz)

# Step B: Preparation of 5-bromo-2,3-dichloropyridine

A mixture of 5-bromo-3-chloro-2(1H)-pyridone (i.e. the product of Step A) (17.7g), PCl<sub>5</sub> (10 g) in 100 mL POCl<sub>3</sub> was refluxed for 4 hours with scrubbing. The reaction mixture was concentrated under reduced pressure to remove most of the POCl<sub>3</sub>, carefully poured into warm water, cooled to room temperature and then extracted with methylene chloride (2X). The combined extracts were dried over magnesium sulfate and concentrated to give an oil which was subjected to column chromatography (8:2/hexanes:ethyl acetate) to give 4.2g of the title compound as an oil.

<sup>1</sup>H NMR (CDCl<sub>3</sub>): δ 7.94(d, 1H, J is 2.2 Hz), 8.37(d, 1H, J is 2.3 Hz).

# Step C: Preparation of 5-Bromo-3-chloro-α-methyl-2-pyridinemethanamine hydrochloride

5-Bromo-2,3-dichloropyridine (i.e. the product of Step B) (4.1 g) was added to a suspension of sodium hydride (60% oil suspension) in 30 mL of dry N,N-dimethylformamide at 0 °C under nitrogen. N-(Diphenylmethylene)glycine ethyl ester (4.6 g) was added in portions with no exotherm, and the mixture was stirred at room temperature for 3 hours. Then, 3.4 mL of methyl iodide was added at < 30 °C and the reaction mixture was stirred overnight at room temperature. The reaction mixture was diluted with water and extracted with diethyl ether (2X). The combined extracts were washed with saturated brine (1X) and concentrated to an oil that was then refluxed in 50 mL of 12N HCl for 4 hours. The reaction mixture was concentrated to an oil, cooled, and slurried with diethyl ether overnight. The ether was then decanted off and the residue was dried in a vacuum oven to give 1.3 g of the title compound as a solid.

<sup>1</sup>H NMR (CDCl<sub>3</sub>): 1.40 and 1.46(dd, 3H, J is 7.0 Hz), 4.7(m, 1H), 8.48(d, 1H, J is 1.8), 8.6(bs, 3H), 8.79(d, 1H, J is 1.9 Hz).

10

15

20

# Step D: Preparation of N-[1-(5-bromo-3-chloro-2-pyridinyl)ethyl]-2,4-dichloro-3-pyridinecarboxamide

A mixture of 5-bromo-3-chloro- $\alpha$ -methyl-2-pyridinemethanamine hydrochloride (i.e the product of Step C) (0.80 g), triethyl amine (1.21 mL) and 2,4-dichloronicotinoyl chloride (0.62g) in 25 mL of methylene chloride was stirred at room temperature overnight. The reaction mixture was concentrated to produce the title compound, a compound of the present invention, as a solid.

<sup>1</sup>H NMR (CDCl<sub>3</sub>):  $\delta$  1.59(d, 3H, J is 6.6 Hz), 5.75(m, 1H), 7.3(bs, 1H), 7.34(d, 1H, J is 5.2 Hz), 7.91(d, 1H, J is 1.9 Hz), 8.33(d, 1H, J is 5.4 Hz), 8.49(d, 1H, J is 1.9 Hz).

# Example 2

Preparation of 2,4-Dichloro-N-[1-(3,5-dichloro-2-pyridinyl)ethyl]-3-pyridinecarboxamide

Example 2 was prepared in analogous fashion to Example 1 using 2-bromo-3,5-dichloropyridine as the starting material and subjecting this material to conditions analogous to those described in Steps C (to prepare 3,5-dichloro-α-methyl-2-pyridinemethanamine) and D of Example 1 to give the title compound as a solid.

<sup>1</sup>H NMR (CDCl<sub>3</sub>): δ 1.58(d, 3H, J is 6.6Hz), 5.7-5.8(m, 1H), 7.4(m, 2H), 7.77(m, 1H), 8.35(m, 1H), 8.40(m, 1H).

Examples of compounds of Formula I suitable for use in component (a) of the compositions of this invention include the following compounds of Tables 1-5. The following abbreviations are used in the Tables which follow: Et is ethyl, Ph is phenyl and CN is cyano. The substituents M, Q and R are equivalent to independent R<sup>5</sup> substituents that have been located in the positions indicated. The substituents T, U and V are equivalent to independent R<sup>6</sup> substituents that have been located in the positions indicated.

Table 1

$$\bigcap_{M} \bigcap_{CH_{2}} \bigcap_{CH_{2}} \bigcap_{V} \bigcap_{T} \bigcap_{N} \bigcap_{T} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{M} \bigcap_{T} \bigcap_{M} \bigcap_{M}$$

25

T and V are both Cl and U is H											
Q	R	M	Q	R	M	Q	R	<u>M</u>			
CI	Cl	Н	Br	Cl	н	Cl	Cl	Me			
Cl	Br	н	Br	Br	H	Cl	Br	Me			
CI	OCF <sub>3</sub>	н	Br	OCF <sub>3</sub>	н	Cl	OCF <sub>3</sub>	Me			
Cl	OCHF <sub>2</sub>	Н	Br	OCHF <sub>2</sub>	H	Cl	OCHF <sub>2</sub>	Me			
Cl	OCH <sub>2</sub> CF <sub>3</sub>	Н	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me			
Cl	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	H	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me			
Cl	OCF <sub>2</sub> CF <sub>2</sub> H	H	Br	OCF2CF2H	H	Cl	OCF2CF2H	Me			
Cl	OCHFCF <sub>3</sub>	H	Br	OCHFCF <sub>3</sub>	H	Cl	OCHFCF <sub>3</sub>	Me			

14

CI   SCF3	Q R M Q R M Q R	
CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCF3CF3 H Br SCF3CF3 H CI SCHFCF3 Me CI SCHFCF3 H Br SCHFCF3 H CI SCHFCF3 Me CI SCH7CF3 H Br SCCH3CF3 H CI SCHFCF3 Me CI SCH7CF3 H Br SCCH5CF3 H CI SCH5CF3 Me CI SCCH2CF3 H Br SCCH3CF3 H CI SCCH3CF3 Me CI SCCH3CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCCH3CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCCH3CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCCH3CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCCH5CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCCH5CF3 H Br SCCH5CF3 H CI SCCH3CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 H Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 M Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 M Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 M Br SCACH5CF3 H CI SCACH5CF3 Me CI SCACH5CF3 M Br SCACH5CF3 M Br CI SCACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CI Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me Br SCACH5CF3 Me Br SCACH5CF3 Me Br CACH5CF3 Me CI CI H Br CI H CI CI Br Me CI CI Br H Br CI H CI CI Br Me CI CI CI H Br CI CI CI Br Me CI CI CI H Br CI CI CACH5CF3 Me CI CI CACH5CF3 H BR CACH5CF3 H CI CACH5CF3 Me CI CACH5CF3 H BR CACH5CF3 H CI CACH5CF3 Me CI CACH5CF3 H BR CACH5CF3 H CI CACH5CF3 Me CI CACH5CF3 H BR	CI CCE U D. CCE. U CI CCE.	
CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCHECF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCHECF3 H Br SCHFCF3 H CI SCHECF3 Me CI SOCH3 H Br SOCH3 H CI SOCH5 Me CI SOCH2CF3 H Br SOCH3 H CI SOCH5 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH5 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH5 Me CI SOCF3 H Br SOCH5 H CI SOCH5 Me CI SOCF3 H Br SOCH5 H CI SOCH5 Me CI SOCF4 H Br SOCH5 H CI SOCH5 Me CI SOCF4 H Br SOCH5 H CI SOCH5 Me CI SOCF4 H Br SOCH5 H CI SOCH5 Me CI SOCF5 H Br SOCH5 H CI SOCH5 Me CI SOCF4 H Br SOCH5 H CI SOCH5 Me CI SOCF4 H Br SOCH5 H CI SOCH5 Me CI SOCF5 H Br SOCH5 H CI SOCH5 Me CI SO2CH3 H Br SOCH5 H CI SOCH5 Me CI SO2CH5 H Br SOCH5 H CI SOCH5 Me CI SO2CH5 H Br SOCH5 H CI SOCH5 Me CI SO2CH5 H Br SOCH5 H CI SO2CH5 Me CI SO2CH5 H Br SOCCH5 H CI SO2CH5 Me CI SO2CH5 H Br SOCCH5 H CI SO2CH5 Me CI SO2CH5 H Br SOCCH5 H CI SO2CH5 Me CI SO2CH5 H Br SOCCH5 H CI SO2CH5 Me CI SO2CH5 H Br SOCCH5 H CI SO2CH5 Me CI SO2CH5 Me Br SOCCH5 Me CI SO2CH5 Me Br SOCH5 Me Br CI SO2CH5 Me CI SO2CH5 Me Br SOCH5 Me Br SOCH5 Me Br SO2CH5 Me Br SOCH5 Me Br SOCH5 Me Br SO2CH5 Me Br SOCH5 Me Br SOCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me CI I Me Br I Me I I I Me  CI CI H Br CI H CI CI Me CI DCH5 H Br OCH5 H CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI CI Me CI DCH5 H Br OCH5 H CI CI CI CI CI CI DCH5 H Br OCH5 H CI CI CI CI CI CI DCH5 H Br OCH5 H CI CI CI CI CI CI DCH5 H Br OCH5 H CI CI CI CI CI CI DCH5 H Br OCH5 H CI CI CI CI CI CI DCH5 H Br OCH5 H CI CI CI CI CI CI CI CI CI H Br OCH5 H CI		
CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCF2CF2H H Br SCF2CF2H H CI SCF2CF3 Me CI SCHFCF3 H Br SCF2CF3 H CI SCF2CF3 Me CI SCHFCF3 H Br SCF2CF3 H CI SCHFCF3 Me CI SOCH3 H Br SOCH52 H CI SOCH52 Me CI SOCH2CF3 H Br SOCH52 H CI SOCH52 Me CI SOCH2CF3 H Br SOCH52 H CI SOCH54 Me CI SOCF3CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCF3CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCF3CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCF3CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCH5CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCF3CF3 H Br SOCF3CF3 H CI SOCH54 Me CI SOCH5CF3 H Br SOCF3CF3 H CI SOCH56 Me CI SO2CH3CF3 H Br SO2CH54 H CI SO2CH56 Me CI SO2CH3CF3 H Br SO2CH54 H CI SO2CH56 Me CI SO2CH3CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH3CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH3CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH3CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH5CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH5CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH5CF3 H Br SO2CH56 H CI SO2CH56 Me CI SO2CH5CF3 Me Br SOCH56 Me Br CI Me Br SO2CH3CF3 Me Br SOCH56 Me Br CI Me Br SO2CH3CF3 Me Br SOCH56 Me Br CI Me Br SO2CH3CF3 Me Br SOCH56 Me Br OCF3 Me Br SO2CH3CF3 Me Br SOCH56 Me Br OCF3 Me Br SO2CH3CF3 Me Br SOCH56 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SOCF3CF4 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SOCF3CF4 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SOCF3CF3 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SCH5CF3 Me Br OCF4CF3 Me Br SO2CH5CF3 Me Br SCH5CF3 Me Br OCF3CF3 Me Br OCF3CF3 Me Br OCF3CF3 Me Br OCF3CF3 Me CI I H Br I H I I M H CI CI Me CI OCF3CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCF3CF4 Me CI OCH5CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF4 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OCF3CF3 H Br OCF3CF3 H CI OCH5CF3 Me CI OC	<u> </u>	
CI SCF_2CF_2H H Br SCF_2CF_2H H CI SCF_2CF_2H Me CI SCHFCF_3 H Br SCHFCF_3 H CI SCHFCF_3 Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SOCH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SO_2CH_2CH H Br SOCH_2CH H CI SOCH_2CH Me CI SO_2CH_2CH H Br SOCH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SO_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SOC_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SOC_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH H Br SOC_2CH_2CH H CI SO_2CH_2CH Me CI SO_2CH_2CH Me Br SOCH_2CH Me Br CI Me Br SO_2CH_2CH Me Br SOCH_2CH Me Br CI Me Br SO_2CH_2CH Me Br SOCH_2CH Me Br CI Me Br SO_2CH_2CH Me Br SOCH_2CH Me Br OCH_2CH Me Br SO_2CH_2CH Me Br SOCH_2CH Me Br OCH_2CH Me Br SO_2CH_2CH Me Br SOCH_2CH Me Br OCH_2CH Me Br SO_2CH_2CH Me Br SCH_2CH Me Br OCH_2CH Me Br SO_2CH_2CH Me Br SCH_2CH Me Br OCH_2CH Me CI CI H Br H Br CI H CI CI Me CI CI H Br H Br CI H CI CI Me CI CI CI H Br H Br CI H CI CI Me CI CI CI H Br H Br CI H CI CI Me CI CI CI H Br H Br CI H CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br H Br CI H CI CI CI Me CI CI CI H Br CI H CI CI CI Me CI CI CI H Br CI CI CI ME CI CI CI CI CI CI ME CI C	I	
CI SCHFCF3 H Br SCHFCF3 H CI SCHFCF3 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH3CH2CF3 Me CI SOCH2CF3 H Br SOCH3CF2 H CI SOCH3CF2 Me CI SOCH2CF3 H Br SOCH3CF3 H CI SOCH3CF3 Me CI SOCH2CF3 H Br SOCH3CF3 H CI SOCH3CF3 Me CI SOCF2CF3 H Br SOCH3CF3 H CI SOCF3CF3 Me CI SOCF3CF2CF3 H Br SOCH3CF3 H CI SOCF3CF3 Me CI SOCGCACF3 H Br SOCH3CF3 H CI SOCF3CF3 Me CI SOCGCACF3 H Br SOCH3CF3 H CI SOCH3CF3 Me CI SO2CH3CF3 H Br SOCH3CF3 H CI SOCCH3CF3 Me CI SO2CH3CF3 H Br SO2CH3CF3 H CI SO2CH3CF3 Me CI SO2CF3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI SO2CH3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI SO2CH3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI SO2CH3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI SO2CH3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI CN H Br SOCH3CF3 H CI SO2CH3CF3 Me CI CN H Br SOCH3CF3 Me Br SOCH3CF3 Me Br SO2CH3CF3 Me Br SOCH3CF3 Me Br CI Me Br SO2CH3CF3 Me Br SOCH3CF3 Me Br CI Me Br SO2CH3CF3 Me Br SOCH3CF3 Me Br OCH3CF3 Me Br SO2CH3CF3 Me Br SOCH3CF3 Me Br OCH3CF3 Me CI CN H Br SOCH3CF3 Me Br OCH3CF3 Me CI CN H Br SOCH3CF3 Me Br OCH3CF3 Me CI CN H Br SOCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SOCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SOCH3CF3 Me Br OCH3CF3 Me CI CI H Br SOCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SOCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SCH3CF3 Me Br OCH3CF3 Me CI CN Me Br SCH3CF3 Me Br OCH3CF3 Me CI CI H Br H I I I H CI CI Br H Br CI H CI CI Me CI CI CI H Br Br H CI Br Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI OCH3CF3 H Br OCH3CF3 H CI OCH3CF3 Me CI		
CI SOCH2 H Br SOCH2 H CI SOCH2 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH2CF3 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCHCF3 H Br SOCHCF3 H CI SOCF2CF3 Me CI SOCHCF3 H Br SOCHCF3 H CI SOCF2CF3 Me CI SO2CH3 H Br SOCHCF3 H CI SOCHCF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 Me Br SOCH3 Me Br CN H CI SO2CH2CF3 Me CI SO2CH2CF3 Me Br SOCH3 Me Br CI Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH3 Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH4C Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH4C Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH4CA Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCH4CA Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH4CF3 Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH4CF3 Me Br SO2CH2CF3 Me Br SCH2CF3 Me Br OCH4CF3 Me Br SCACHACH3 Me Br SCH4CF3 Me Br OCH4CF3 Me Br SCACHACH3 Me Br SCH4CF3 Me Br OCH4CF3 Me Br SCACHACH4 Me Br CH H I I Me I I Me  CI I Me Br I Me I I Me I I Me  CI CI H Br CI H CI CI Me CI OCH4CF3 H Br OCH4CF3 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI OCH4CF3 H Br OCH4CF4 H CI OCH4CF3 Me CI SCH4CH H Br OCH4CF4 H CI SCH4CH4 CI SCH4CH4 H Br OCH4CF4 H CI SCH4CH4 CI SCH4CH4 H BR SCH4CF4 H CI SCH4CH4 CI SCH4CH4 H BR SCH4CF4 H CI SCH4CH4 CI SCH4CH4		
CI SOCHF2 H Br SOCH2 H CI SOCH2 Me CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF2H Me CI SOCHFCT3 H Br SOCF2CF3 H CI SOCF2CF2H Me CI SOCHFCT3 H Br SOCF2CF3 H CI SOCF4CF3 Me CI SO2CH3 H Br SOCF4CF3 H CI SOCH5CF3 Me CI SO2CH3 H Br SO2CH3 H CI SO2CH5C3 Me CI SO2CH3CF3 H Br SO2CH3CF3 H CI SO2CH3CF3 Me CI SO2CH3CF3 H Br SO2CH3CF3 H CI SO2CH3CF3 Me CI SO2CF3CF3 H Br SO2CF3CF3 H CI SO2CH3CF3 Me CI SO2CF3CF3 H Br SO2CF3CF3 H CI SO2CF3CF3 Me CI SO2CF3CF3 H Br SO2CF3CF3 H CI SO2CF3CF3 Me CI SO2CF3CF3 H Br SO2CF3CF3 H CI SO2CF3CF3 Me CI SO2CH3CF3 H Br SO2CF3CF3 H CI SO2CF3CF3 Me CI SO2CF3CF3 Me Br SOCH5CF3 H CI SO2CH3CF3 Me CI CN H Br SOCH5CF3 Me Br SOCH5CF3 Me Br CI Me Br SO2CH3CF3 Me Br SOCH5CF3 Me Br CI Me Br SO2CH3CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH3CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SOCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SOCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SOCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SOCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SCF3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SCF3CF3 Me Br OCF3CF3 Me Br SCF3 Me Br SCF3CF3 Me Br OCF3CF3 Me CI I H Br I H I I I H H CI I Me Br I H CI Br Me CI OCF3 H Br OCH5CF3 H CI OCF3 Me CI OCF3 H Br OCH5CF3 H CI OCF3 Me CI OCF3 H Br OCH5CF3 H CI OCF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCF3CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCF3CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCF3CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCF3CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCF3CF3 Me CI OCF3CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me CI OCH5CF3 H Br OCH5CF3 H CI OCH5CF3 Me		
CI SOCH2CF3 H Br SOCH2CF3 H CI SOCH2CF3 Me CI SOCF2CF3 H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCF2CF2H H Br SOCF2CF3 H CI SOCF2CF2H Me CI SOCHFCF3 H Br SOCHFCF3 H CI SOCHFCF3 Me CI SO2CH2CF3 H Br SOCHFCF3 H CI SOCHFCF3 Me CI SO2CHF2 H Br SO2CHF2 H CI SO2CHF2 Me CI SO2CHF2 H Br SO2CHF2 H CI SO2CHF2 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF2H H CI SO2CF2CF3 Me CI SO2CF2CF2 H Br SO2CF2CF2 H CI SO2CF2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF2 H CI SO2CHFCF3 Me CI SO2CHFCF3 Me Br SOCH2CF3 H CI SO2CHFCF3 Me Br SO2CH7CF3 Me Br SOCH2CF3 Me Br CI Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br CI Me Br SO2CH2CF3 Me Br SOCH2CF3 Me Br OCH72 Me Br SO2CH2CF3 Me Br SOCF2CF2 Me Br OCH72 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCH72 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCH72 Me Br SO2CH2CF3 Me Br SCF2CF3 Me Br OCH72 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCH72 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCH72CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCH72CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCH72CF3 Me Br SC2CH2CF3 Me Br SCCF2CF3 Me Br OCH72CF3 Me Br SC2CH2CF3 Me Br SCH2CF3 Me Br OCH72CF3 Me Br SC73 Me Br SCH2CF3 Me Br OCH72CF3 Me CI I H Br I H I I I Me  CI CI H Br I H I I I Me  CI CI H Br CI H CI CI Me CI DCH72 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72CF3 H CI OCH72CF3 Me CI OCH72CF3 H Br OCH72C		
CI SOCF2CF3 H Br SOCF2CF3 H CI SOCF2CF3 Me CI SOCF2CF2H H Br SOCF2CF2H H CI SOCF2CF2H Me CI SOCHFCF3 H Br SOCF2CF3 H CI SOCHFCF3 Me CI SO2CH5 H Br SOCHFCF3 H CI SOCHFCF3 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 H Br SO2CH5 H CI SO2CH5 Me CI SO2CH5 M Br SOCF3 Me Br CI Me Br SO2CH5 M Br SOCH5 Me Br CI Me Br SO2CH5 Me Br SOCH5 Me Br CI Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCH5 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF3 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF2 Me Br OCH5 Me Br SO2CH5 Me Br SOCF3 Me Br OCH5 Me CI I H Br I H I I H CI I Me Br I Me I I Me CI CI Br H Br OCH5 Me I Me I I Me  CI OCH5 H Br OCH5 H CI Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H CI OCH5 Me	2   - (	
CI SOCF2CF2H H Br SOCF2CF2H H CI SOCF2CF2H Me CI SOCHFCF3 H Br SOCHFCF3 H CI SOCHFCF3 Me CI SO2CH3 H Br SO2CH3 H CI SO2CH3 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH42 H Br SO2CH42 H CI SO2CH42 Me CI SO2CH4 H Br SO2CH4 H CI SO2CH42 Me CI SO2CH4 H Br SO2CH4 H CI SO2CH4 Me CI SO2CH4 H Br SO2CH4 H CI SO2CH4 Me CI SO2CH4 H Br SO2CH4 H CI SO2CH4 Me CI SO2CH4 H Br SO2CH4 H CI SO2CH4 Me CI SO2CH4 H Br SOCH4 H CI SO2CH4 Me Br SO2CH4 H Br SOCH4 H CI SO2CH4 Me Br SO2CH5 M Br SOCH4 H Br SOCH4 Me Br SO2CH5 M Br SOCH4 Me Br Br Me Br SO2CH5 Me Br SOCH4 Me Br Br Me Br SO2CH4 Me Br SOCH4 Me Br OCH4 Me Br SO2CH5 M Br SOCH4 Me Br OCH4 Me Br SO2CH5 M Br SOCF2 M Me Br OCH4 Me Br SO2CH5 M Br SOCF2 M Me Br OCH5 Me Br SO2CH5 M Br SOCF2 M Me Br OCH5 Me Br SO2CH5 M Br SOCF2 M Me Br OCH5 Me Br SO2CH5 Me Br SCH5 M Br OCH5 Me Br SO2CH5 Me Br SCH5 M Br OCH5 Me Br SOC M Me Br SCH5 M Me Br OCH5 Me CI I H Br I H I I H Me  CI I M Br I M I I Me  CI CI H Br H Br I M I I Me  CI CI H Br M Br OCH5 M CI MA  CI CI CH4 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H H CI OCH5 Me	2-3   2-3	<sub>3</sub> Me
CI SOCHFCF3 H Br SOCHFCF3 H CI SOCHFCF3 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH52 H CI SO2CH52 Me CI SO2CH52 H Br SO2CH53 H CI SO2CH53 Me CI SO2CH563 H Br SO2CH53 H CI SO2CH54 Me CI SO2CH563 H Br SOCH53 Me Br CI Me Br SO2CH5 Me Br SOCH5 Me Br CI Me Br SO2CH5 Me Br SOCH5 Me Br CI Me Br SO2CH5 Me Br SOCH52 Me Br CI Me Br SO2CH5 Me Br SOCH52 Me Br OCH53 Me Br SO2CH5 Me Br SOCH52 Me Br OCH53 Me Br SO2CH5 Me Br SOCH52 Me Br OCH54 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCH54 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCH54 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCH54 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCH54 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH52 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCH56 Me CI I H Br I H I I I H CI I Me Br I H CI CI CI Me CI DCF3 H Br OCH52 H CI OCH52 Me CI OCH53 H Br OCH52 H CI OCH52 Me CI OCH54 H Br OCH52 H CI OCH52 Me CI OCH56 H Br OCH52 H CI OCH52 Me CI OCH57 H Br OCH52 H CI OCH52 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH57 H Br OCH56 H CI OCH56 Me CI OCH57 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH57 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me CI OCH56 H Br OCH56 H CI OCH56 Me	Cl SOCF <sub>2</sub> CF <sub>3</sub> H Br SOCF <sub>2</sub> CF <sub>3</sub> H Cl SOCF <sub>2</sub> CF	Me
CI SO2CF3 H Br SO2CF3 H CI SO2CF3 Me CI SO2CHF2 H Br SO2CHF2 H CI SO2CHF2 Me CI SO2CHF2 H Br SO2CHF2 H CI SO2CHF2 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF2H H Br SO2CF2CF2H H CI SO2CF2CF3 Me CI SO2CF3 H Br SO2CF3 H CI SO2CH5CF3 Me CI SO2CH5CF3 H Br SO2CH5CF3 H CI SO2CH5CF3 Me CI CN H Br SOCH5 Me Br SO2CH5 Me Br SOCH5 Me Br CI Me Br SO2CF3 Me Br SOCH5 Me Br CI Me Br SO2CH5 Me Br SOCH5 Me Br OCF3 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CH5 Me Br SOCF2CF3 Me Br OCF4CF3 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCF2CF3 Me Br SO2CF2CF3 Me Br SCF2CF3 Me Br OCF2CF3 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCF2CF3 Me Br SO2CH5 Me Br SCF2CF3 Me Br OCF2CF3 Me CI I H Br SCF2CF3 Me Br SCH5CF3 Me Br OCF4CF3 Me CI I Me Br I H Br I H I I H H CI I Me Br I Me I I Me CI CI Br H Br OCF3 H CI DCF3 Me CI OCF3 H Br OCF3 H CI DCF3 Me CI OCF3 H Br OCF4CF3 H CI DCF3 Me CI OCF3 H Br OCF3 H CI DCF3 Me CI OCF3 H Br OCF3 H CI DCF3 Me CI OCF5 H Br OCF3 H CI DCF3 Me CI OCF5 H Br OCF5 H CI DCF5 Me	Cl SOCF <sub>2</sub> CF <sub>2</sub> H H Br SOCF <sub>2</sub> CF <sub>2</sub> H H Cl SOCF <sub>2</sub> CF <sub>2</sub>	н Ме
CI SO2CHF2 H Br SO2CHF2 H CI SO2CHF2 Me CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF2 H Br SO2CF2CF2 H CI SO2CF2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF2 H CI SO2CF2CF3 Me CI SO2CF3CF3 H CI SO2CF3CF2 H ME CI SO2CF3CF3 H CI SO2CF3CF3 Me CI SO2CF3CF3 H CI SO2CF3 Me CI SO2CF3 Me Br SOCCH3 Me Br CI Me Br SO2CH3 Me Br SOCF3 Me Br CI Me Br SO2CF3 Me Br SOCF3 Me Br CI Me Br SO2CF3 Me Br SOCF3 Me Br OCF3 Me Br SO2CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SCA2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SCA2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SCA2CF3 Me Br OCF3 Me Br SO2CF3CF3 Me Br SCA3CF3 Me Br OCF3CF3 Me Br SO2CF3CF3 Me Br SCA3CF3 Me Br OCF3CF3 Me Br SC3CF3 Me Br SCF3CF3 Me Br OCF3CF3 Me CI I H Br I H I I H H I I H H I I ME  CI CI H Br I Me I I ME  CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCH5 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCH5 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCH5 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me CI OCF3 H Br OCF3 H CI OCH5 Me	CI SOCHFCF <sub>3</sub> H Br SOCHFCF <sub>3</sub> H CI SOCHFCF	Me
CI SO2CH2CF3 H Br SO2CH2CF3 H CI SO2CH2CF3 Me CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF2H H Br SO2CF2CF2H H CI SO2CF2CF3 Me CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me CI CN H Br SOCHFCF3 Me Br SOCF3 Me Br CI Me Br SO2CH3 Me Br SOCH3 Me Br CI Me Br SO2CH4CF3 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH4CF3 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCH52 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCH52 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH5CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF2CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF2CF3 Me CI I H Br SCF2CF3 Me Br OCH5CF3 Me CI I H Br I H I I Me CI I Me CI CI H Br CI H CI CI Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCH5C H Br OCF3 H CI OCF3 Me CI OCH5C H Br OCH5CF3 H CI OCF5 Me CI OCH5C H Br OCH5CF3 H CI OCF5 Me CI OCH5C H Br OCH5CF3 H CI OCF5 Me CI OCF3 H Br OCF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF5 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF5 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF5 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF5 Me CI SCH5C H Br SCH5CF3 H CI OCF5CF5 Me CI SCH5C H Br SCH5CF3 H CI SCH5CF3 Me CI SCH5C H Br SCH5CF3 H CI SCH5CF3 Me CI SCH5C H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5C H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me	Cl SO <sub>2</sub> CF <sub>3</sub> H Br SO <sub>2</sub> CF <sub>3</sub> H Cl SO <sub>2</sub> CF <sub>3</sub>	Me
CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF2H H Br SO2CF2CF2H H CI SO2CF2CF2H Me CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me CI CN H Br CN H CI CN Me Br SO2CHFCF3 Me Br SOCH5CF3 Me Br CI Me Br SO2CHF2 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCF5CF3 Me Br SO2CF5CF3 Me Br SCCF2CF3 Me Br OCF5CF3 Me Br SO2CF5CF3 Me Br SCCF2CF3 Me Br OCF5CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF5CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF5CF3 Me CI I H Br SCF5CF3 Me Br SCH5CF3 Me Br OCH5CF3 Me CI I H Br I H I I H I Me CI CI H Br CI H CI CI Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI SCF3 H Br SCF3 H CI SCF5 Me CI SCH5CF3 H Br SCF5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCF5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me	Cl SO <sub>2</sub> CHF <sub>2</sub> H Br SO <sub>2</sub> CHF <sub>2</sub> H Cl SO <sub>2</sub> CHF <sub>3</sub>	Me
CI SO2CF2CF3 H Br SO2CF2CF3 H CI SO2CF2CF3 Me CI SO2CF2CF2H H Br SO2CF2CF2H H CI SO2CF2CF2H Me CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me CI CN H Br CN H CI CN Me Br SO2CHFCF3 Me Br SOCH5CF3 Me Br CI Me Br SO2CHF2 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCH5CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CH5CF3 Me Br SOCF2CF3 Me Br OCF3 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCF5CF3 Me Br SO2CF5CF3 Me Br SCCF2CF3 Me Br OCF5CF3 Me Br SO2CF5CF3 Me Br SCCF2CF3 Me Br OCF5CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF5CF3 Me Br SO2CH5CF3 Me Br SCF2CF3 Me Br OCF5CF3 Me CI I H Br SCF5CF3 Me Br SCH5CF3 Me Br OCH5CF3 Me CI I H Br I H I I H I Me CI CI H Br CI H CI CI Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF5 H CI OCF5CF3 Me CI SCF3 H Br SCF3 H CI SCF5 Me CI SCH5CF3 H Br SCF5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCF5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF3 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF3 H Br SCH5CF5 H CI SCH5CF3 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me CI SCH5CF5 H Br SCH5CF5 H CI SCH5CF5 Me	Cl SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub> H Br SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub> H Cl SO <sub>2</sub> CH <sub>2</sub> CI	з Ме
CI SO2CF2CF2H H Br SO2CF2CF2H H CI SO2CF2CF2H Me CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me Br SOCHFCF3 Me Br SOCF3 Me Br CI Me Br SO2CF3 Me Br SOCHF2 Me Br Br Me Br SO2CHF2 Me Br SOCH6CF3 Me Br OCF3 Me Br SO2CHF2 Me Br SOCF2CF3 Me Br OCH6CF3 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCH6CF3 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCH6CF3 Me Br SO2CF2CF2 Me Br SCCF2CF3 Me Br OCH6CF3 Me Br SO2CF3CF2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH6CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH6CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SCCACH6CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me CI I H Br I H I I H H I I H H I I MME  T and V are both CI and U is CH3  Q R M Q R M Q R M CI OCH6CF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCF2CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCF2CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCF2CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCF4CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCF4CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI OCH6CF3 H Br OCF4CF3 H CI OCH6CF3 Me CI SCF3 H Br SCH6CF4 H CI SCH6CF4 Me CI SCH6CF4 H Br SCH6CF6 H CI SCH6CF5 Me CI SCH6CF4 H Br SCH6CF6 H CI SCH6CF6 Me		
CI SO2CHFCF3 H Br SO2CHFCF3 H CI SO2CHFCF3 Me Br SOCHFCF3 Me Br SOCF3 Me Br CI Me Br SO2CF3 Me Br SOCHF2 Me Br Br Me Br SO2CHF2 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCHF2 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCHF2 Me Br SO2CF2CF3 Me Br SOCF2CF3 Me Br OCH2CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCH2CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SO2CH2CF3 Me Br SCCF2CF3 Me Br OCF2CF3 Me Br SCF3 Me Br SCH2CF3 Me Br OCH2CF3 Me CI I H Br I H I I H CI I Me Br I H I I Me  Tand V are both CI and U is CH3  Q R M Q R M Q R M  CI CI H Br H Br Br H CI Br Me CI OCF3 H Br OCF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCF2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me		Н Ме
CI		
Br         SO2CF3         Me         Br         SOCHF2         Me         Br         Br         Me           Br         SO2CHF2         Me         Br         SOCH2CF3         Me         Br         OCF3         Me           Br         SO2CH2CF3         Me         Br         SOCF2CF2         Me         Br         OCH2CF3         Me           Br         SO2CF2CF2H         Me         Br         SCCF2CF3         Me         Br         OCF2CF3         Me           Br         SO2CFFCF3         Me         Br         SCF2CF3         Me         Br         OCF2CF2H         Me           Br         SO2CHFCF3         Me         Br         SCF2CF2H         Me         Br         OCF2CF2H         Me           Br         SO2CHFCF3         Me         Br         SCF2CF2H         Me         Br         OCF2CF3         Me           Br         CN         Me         Br         SCF2CF2H         Me         Br         OCF4CF3         Me           Br         SCF3         Me         Br         SCHFCF3         Me         Br         SCHF2         Me           CI         I         H         Br         Br <td< td=""><td></td><td>-</td></td<>		-
Br SO2CHF2 Me Br SOCH2CF3 Me Br OCF3 Me Br SO2CH2CF3 Me Br SO2CH2CF3 Me Br SOCF2CF3 Me Br OCHF2 Me Br SO2CF2CF3 Me Br SO2CF2CF3 Me Br OCH2CF3 Me Br SO2CF2CF2H Me Br OCH2CF3 Me Br SO2CHFCF3 Me Br SCP2CF3 Me Br OCF2CF3 Me Br SCP2CF3 Me Br OCF2CF3 Me Br SCP2CF3 Me Br OCF2CF3 Me Br SCP3CHFCF3 Me Br SCF2CF3 Me Br OCH7CF3 Me Br SCF3 Me Br SCHFCF3 Me Br SCHF2 Me CI I Me Br I H I I I H Me I I I Me  T amd V are both Cl and U is CH3  Q R M Q R M Q R M Q R ME CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCF3 H Br OCH5 H CI OCF3 Me CI OCH2CF3 H Br OCH5 H CI OCH5 Me CI OCH2CF3 H Br OCH5 H CI OCH5 Me CI OCH2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH2CF3 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF2CF3 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCF5 H Br OCH5 H CI OCH5 Me CI OCH5 H Br OCH5 H H CI OCH5 Me CI OCH5 H Br SCH5 H CI OCH5 Me CI SCH5 H Br SCH5 H CI SCH5 Me CI SCH5 H Br SCH5 H CI SCH5 Me CI SCH5 H Br SCH5 H CI SCH5 Me	Br SOCHFCF <sub>3</sub> Me Br SOCF <sub>3</sub> Me Br Cl	Me
Br SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub> Me Br SOCF <sub>2</sub> CF <sub>3</sub> Me Br OCHF <sub>2</sub> Me Br SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub> Me Br SOCF <sub>2</sub> CF <sub>2</sub> H Me Br OCH <sub>2</sub> CF <sub>3</sub> Me Br SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H Me Br SCH <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>2</sub> H Me Br SO <sub>2</sub> CHFCF <sub>3</sub> Me Br SCF <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>2</sub> H Me Br SCF <sub>2</sub> CF <sub>3</sub> Me Br OCHFCF <sub>3</sub> Me Br SCF <sub>3</sub> Me Br SCH <sub>2</sub> CF <sub>3</sub> Me Br SCHFCF <sub>3</sub> Me Br SCHF <sub>2</sub> Me Br SCHF <sub>3</sub> Me Br SCHF <sub>2</sub> Me CI I Me Br I Me I I Me  Tand V are both Cl and U is CH <sub>3</sub> Q R M Q R M Q R M Q R M CI H CI CI Me CI Br Me CI OCF <sub>3</sub> H Br OCF <sub>3</sub> H CI OCF <sub>3</sub> Me CI OCF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCF <sub>2</sub> CF <sub>2</sub> H H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me	Br SO <sub>2</sub> CF <sub>3</sub> Me Br SOCHF <sub>2</sub> Me Br Br	Me
Br         SO2CF2CF3         Me         Br         SOCF2CF2H         Me         Br         OCH2CF3         Me           Br         SO2CF2CF2H         Me         Br         SCH2CF3         Me         Br         OCF2CF3         Me           Br         SO2CHFCF3         Me         Br         SCF2CF2H         Me         Br         OCH2CF3         Me           Br         CN         Me         Br         SCF2CF2H         Me         Br         OCH7CF3         Me           Br         SCF3         Me         Br         SCHFCF3         Me         Br         OCHFCF3         Me           CI         I         H         Br         I         H         I         I         H         H         II         I         H         H         II         I         H         II         I         Me         Me         CHFCF3         Me         CHFCF3         Me         CHFCF3         Me         CHFCF3         Me<	Br SO <sub>2</sub> CHF <sub>2</sub> Me Br SOCH <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>3</sub>	Me
Br SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H Me Br SCH <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>3</sub> Me Br SO <sub>2</sub> CHFCF <sub>3</sub> Me Br SCF <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>2</sub> H Me Br CN Me Br SCF <sub>2</sub> CF <sub>2</sub> H Me Br OCHFCF <sub>3</sub> Me Br SCF <sub>3</sub> Me Br SCHFCF <sub>3</sub> Me Br SCHF <sub>2</sub> Me CI I H Br I H I I H H CI I Me Br I Me I I Me CI CI Me CI Br H Br Br H CI Br Me CI DCF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me	Br SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub> Me Br SOCF <sub>2</sub> CF <sub>3</sub> Me Br OCHF <sub>2</sub>	Me
Br SO2CHFCF3 Me Br SCF2CF3 Me Br OCF2CF2H Me Br CN Me Br SCF2CF2H Me Br OCHFCF3 Me Br SCF3 Me Br SCF5 Me Br SCF5 Me Br SCF5 Me Br SCHFCF3 Me Br SCHF2 Me CI I Me Br I Me I I Me T I ME	Br SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub> Me Br SOCF <sub>2</sub> CF <sub>2</sub> H Me Br OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	Br SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H Me Br SCH <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>3</sub>	Me
Br SCF3 Me Br SCHFCF3 Me Br SCHF2 Me CI I H Br I H I I H CI I Me Br I Me I I H CI I Me Br I Me I I H CI I Me Br I Me I I Me  T and V are both CI and U is CH3  Q R M Q R M Q R M CI CI H Br CI H CI CI Me CI Br H Br Br H CI Br Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCHF2 H Br OCHF2 H CI OCHF2 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF4 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF5 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF5CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCF5CF3 H Br OCF5CF3 H CI OCF5CF3 Me CI OCH5CF3 H Br SCF3 H CI OCH5CF3 Me CI SCF3 H Br SCF3 H CI SCF5 Me CI SCF6 H Br SCH5CF3 H CI SCH5CF3 Me CI SCF6 H Br SCH5CF3 H CI SCH5CF3 Me CI SCF6 H Br SCH5CF3 H CI SCH5CF3 Me	Br SO <sub>2</sub> CHFCF <sub>3</sub> Me Br SCF <sub>2</sub> CF <sub>3</sub> Me Br OCF <sub>2</sub> CF <sub>2</sub> I	H Me
CI I H Br I H I I H Me  T and V are both Cl and U is CH3  Q R M Q R M Q R M  CI CI H Br CI H CI CI Me  CI Br H Br OCF3 H CI OCF3 Me  CI OCHF2 H Br OCHF2 H CI OCHF2 Me  CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me  CI OCF2CF4 H Br OCF2CF3 H CI OCF2CF3 Me  CI OCF2CF5 H Br OCF2CF4 H CI OCF2CF3 Me  CI OCF2CF5 H Br OCF2CF5 H CI OCF2CF3 Me  CI OCF2CF6 H Br OCF2CF6 H CI OCF2CF6 Me  CI OCF2CF6 H Br OCF2CF6 H CI OCF2CF6 Me  CI OCF2CF6 H Br OCF2CF6 H CI OCF2CF6 Me  CI OCF1CF6 H Br OCF2CF6 H CI OCF2CF6 Me  CI OCH7CF6 H Br OCF1CF6 H CI OCH7CF6 Me  CI SCF6 H Br SCF6 H CI SCF6 Me  CI SCF6 H Br SCH6 H CI SCF6 Me  CI SCF6 H Br SCH6 H CI SCH6 Me  CI SCF6 H Br SCH6 H CI SCH6 Me		
T and V are both Cl and U is CH3           Q         R         M         Q         R         M         Q         R         M           Cl         Cl         H         Br         Cl         H         Cl         Cl         Me           Cl         Br         H         Br         Br         H         Cl         OCF3         Me           Cl         OCF3         H         Br         OCF3         H         Cl         OCF3         Me           Cl         OCH2         H         Br         OCH2         H         Cl         OCH52         Me           Cl         OCH2         H         Br         OCH2         H         Cl         OCH2         Me           Cl         OCH2         H         Br         OCH2         H         Cl         OCH2         Me           Cl         OCF2         H         Br         OCF2         H         Cl         OCF2         CF3         Me           Cl         OCH2         H         Br         OCH2         H         H         Cl         OCH2         CF3         Me           Cl         OCH2         H         Br	Br SCF <sub>3</sub> Me Br SCHFCF <sub>3</sub> Me Br SCHF <sub>2</sub>	Me
Q         R         M         Q         R         M         Q         R         M           Cl         Cl         H         Br         Cl         H         Cl         Cl         Me           Cl         Br         H         Br         Br         H         Cl         OCF3         Me           Cl         OCF3         H         Br         OCF2         H         Cl         OCF3         Me           Cl         OCHF2         H         Br         OCHF2         H         Cl         OCHF2         Me           Cl         OCH2CF3         H         Br         OCH2CF3         H         Cl         OCH2CF3         Me           Cl         OCF2CF3         H         Br         OCF2CF3         H         Cl         OCF2CF3         Me           Cl         OCF2CF2H         H         Br         OCF2CF2H         H         Cl         OCF2CF2H         Me           Cl         OCHFCF3         H         Cl         OCHFCF3         H         Cl         OCHFCF3         Me           Cl         SCF3         H         Br         SCH2         H         Cl         SCH2         Me	CI I H Br I H I I	Н
Q R M Q R M Q R M Q R M CI CI CI Me CI CI H Br CI H CI CI Br Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCHF2 H Br OCHF2 H CI OCHF2 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF4 H Br OCF2CF4 H CI OCF2CF4 Me CI OCF5CF5 H CI OCF5CF5 Me CI OCF5CF5 H CI OCF5CF5 Me CI OCH5CF5 H CI OCH5CF5 Me CI OCH5CF5 H CI OCH5CF5 Me CI SCF6 H Br SCF6 H CI SCF6 Me CI SCF6 H Br SCH5 H CI SCF6 Me CI SCH6 H Br SCH6 H CI SCH6 Me CI SCH6 H Br SCH6 H CI SCH6 Me	Cl I Me Br I Me I I	Me
Q R M Q R M Q R M Q R M CI CI CI Me CI CI H Br CI H CI CI Br Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCHF2 H Br OCHF2 H CI OCHF2 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF4 H Br OCF2CF4 H CI OCF2CF4 Me CI OCF5CF5 H CI OCF5CF5 Me CI OCF5CF5 H CI OCF5CF5 Me CI OCH5CF5 H CI OCH5CF5 Me CI OCH5CF5 H CI OCH5CF5 Me CI SCF6 H Br SCF6 H CI SCF6 Me CI SCF6 H Br SCH5 H CI SCF6 Me CI SCH6 H Br SCH6 H CI SCH6 Me CI SCH6 H Br SCH6 H CI SCH6 Me	T and V are both Cl and U is CH	
CI CI H Br CI H CI CI Me CI Br H Br Br H CI Br Me CI OCF3 H Br OCF3 H CI OCF3 Me CI OCHF2 H Br OCHF2 H CI OCHF2 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF4 H Br OCF2CF4 H CI OCF2CF4 Me CI OCF5CF5 H CI OCF2CF5 Me CI OCH6CF5 H CI OCF5CF5 Me CI OCH6CF5 H CI OCH6CF5 Me CI OCH6CF5 H CI OCH6CF5 Me CI SCF6 H Br SCF6 H CI SCF6 Me CI SCF7 H Br SCH6C H CI SCH6C Me CI SCH6C H Br SCH6C H CI SCH6CF5 Me CI SCH6C H Br SCH6C H CI SCH6CF5 Me CI SCH6CF5 H CI SCH6CF5 Me		М
CI OCF3 H Br OCF3 H CI OCF3 Me CI OCHF2 H Br OCHF2 H CI OCHF2 Me CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me CI OCF2CF4 H Br OCF2CF2 H CI OCF2CF4 Me CI OCHFCF3 H CI OCF2CF2 Me CI OCHFCF3 H CI OCHFCF3 Me CI SCF3 H Br SCF3 H CI SCF3 Me CI SCH2CF4 H Br SCH52 H CI SCH52 Me CI SCH2CF3 H Br SCH52 H CI SCH52 Me CI SCH2CF3 H Br SCH52 H CI SCH52 Me CI SCF2CF3 H Br SCH52 H CI SCH52 Me		
CI OCHF2 H Br OCHF2 H CI OCHF2 Me  CI OCH2CF3 H Br OCH2CF3 H CI OCH2CF3 Me  CI OCF2CF3 H Br OCF2CF3 H CI OCF2CF3 Me  CI OCF2CF2H H Br OCF2CF2H H CI OCF2CF2H Me  CI OCHFCF3 H Br OCHFCF3 H CI OCHFCF3 Me  CI SCF3 H Br SCF3 H CI SCF3 Me  CI SCHF2 H Br SCHF2 H CI SCHF2 Me  CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me  CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me	Cl Br H Br Br H Cl Br	
CI OCH <sub>2</sub> CF <sub>3</sub> H Br OCH <sub>2</sub> CF <sub>3</sub> H CI OCH <sub>2</sub> CF <sub>3</sub> Me  CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCF <sub>2</sub> CF <sub>3</sub> H CI OCF <sub>2</sub> CF <sub>3</sub> Me  CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCF <sub>2</sub> CF <sub>2</sub> H H CI OCF <sub>2</sub> CF <sub>2</sub> H Me  CI OCHFCF <sub>3</sub> H Br OCHFCF <sub>3</sub> H CI OCHFCF <sub>3</sub> Me  CI SCF <sub>3</sub> H Br SCF <sub>3</sub> H CI SCF <sub>3</sub> Me  CI SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H CI SCHF <sub>2</sub> Me  CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me  CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me  CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me		
CI OCF <sub>2</sub> CF <sub>3</sub> H Br OCF <sub>2</sub> CF <sub>3</sub> H CI OCF <sub>2</sub> CF <sub>3</sub> Me CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCF <sub>2</sub> CF <sub>2</sub> H H CI OCF <sub>2</sub> CF <sub>2</sub> H Me CI OCHFCF <sub>3</sub> H CI OCHFCF <sub>3</sub> Me CI SCF <sub>3</sub> H Br SCF <sub>3</sub> H CI SCF <sub>3</sub> Me CI SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H CI SCHF <sub>2</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me		
CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCF <sub>2</sub> CF <sub>2</sub> H H CI OCF <sub>2</sub> CF <sub>2</sub> H Me CI OCHFCF <sub>3</sub> H Br OCHFCF <sub>3</sub> H CI OCHFCF <sub>3</sub> Me CI SCF <sub>3</sub> H Br SCF <sub>3</sub> H CI SCF <sub>3</sub> Me CI SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H CI SCHF <sub>2</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me		Me
CI OCHFCF3 H Br OCHFCF3 H CI OCHFCF3 Me CI SCF3 H Br SCF3 H CI SCF3 Me CI SCHF2 H Br SCHF2 H CI SCHF2 Me CI SCH2CF3 H Br SCH2CF3 H CI SCH2CF3 Me CI SCF2CF3 H Br SCF2CF3 H CI SCF2CF3 Me		Me
CI SCF <sub>3</sub> H Br SCF <sub>3</sub> H CI SCF <sub>3</sub> Me CI SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H CI SCHF <sub>2</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me	CI OCF <sub>2</sub> CF <sub>2</sub> H H Br OCF <sub>2</sub> CF <sub>2</sub> H H CI OCF <sub>2</sub> CF <sub>2</sub> I	I Me
CI SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H CI SCHF <sub>2</sub> Me CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me	Cl OCHFCF3 H Br OCHFCF3 H Cl OCHFCF3	Me
CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me		Me
CI SCH <sub>2</sub> CF <sub>3</sub> H Br SCH <sub>2</sub> CF <sub>3</sub> H CI SCH <sub>2</sub> CF <sub>3</sub> Me CI SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H CI SCF <sub>2</sub> CF <sub>3</sub> Me	Cl SCHF <sub>2</sub> H Br SCHF <sub>2</sub> H Cl SCHF <sub>2</sub>	Me
Cl SCF <sub>2</sub> CF <sub>3</sub> H Br SCF <sub>2</sub> CF <sub>3</sub> H Cl SCF <sub>2</sub> CF <sub>3</sub> Me		Me
		Me
CI SCF <sub>2</sub> CF <sub>2</sub> H H Br SCF <sub>2</sub> CF <sub>2</sub> H H CI SCF <sub>2</sub> CF <sub>2</sub> H Me		
	CI SCHFCF3 H Br SCHFCF3 H CI SCHFCF3	

		T	ond V	are both Cl and U	J is CH	[3	•	
_Q_	R	M	Q	R	M	Q	R	M
CI	SOCF <sub>3</sub>	H	Br	SOCF <sub>3</sub>	H	CI	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	CI	SOCF <sub>2</sub> CF <sub>3</sub>	Me
CI	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	CI	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
CI	SOCHFCF <sub>3</sub>	H	Br	SOCHFCF <sub>3</sub>	H	Cl	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	CI	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	C1	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
Cl	CN	н	Br	CN	н	Cl	CN	Me
Br	SOCHFCF3	Me	Br	SOCF <sub>3</sub>	Me	Br	Ci	Me
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF3	Me	Br	SCHF <sub>2</sub>	Me
Cl	ı	Н	Br	I	н	1	ı	н
		**		-	п			11
CI	Ī	Me	Br	Î	Me	Ī	i	Me
		Me	Br	I	Me	I		-
CI	ľ	Me	Br T is Cl	I and V and U are b	Me oth Me	I	1	Me
		Me	Br	I	Me	I		Me M
CI Q CI CI	I R Cl Br	Me M H H	Br T is Cl Q Br Br Br	I and V and U are b R Cl Br	Me oth Me M H H	I Q CI CI	I R Cl Br	Me Me Me
Q Cl Cl Cl	R Cl Br OCF <sub>3</sub>	Me M H H H	Br Cis Cl Q Br Br Br Br	and V and U are b R Cl Br OCF3	Me oth Me M H H H	O CI CI CI	R Cl Br OCF3	Me Me Me Me
Q Cl Cl Cl Cl	R CI Br OCF3	Me M H H H	Br I is Cl Q Br Br Br Br	and V and U are b R Cl Br OCF <sub>3</sub> OCHF <sub>2</sub>	Me oth Me M H H H	O CI CI CI	R Cl Br OCF <sub>3</sub> OCHF <sub>2</sub>	Me Me Me
Q CI CI CI CI CI	R CI Br OCF3 OCHF2 OCH <sub>2</sub> CF3	Me M H H H	Br I is Cl Q Br Br Br Br Br	and V and U are b  R  Cl  Br  OCF <sub>3</sub> OCHF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	Me oth M H H H H	2 0 0 0 0 0 0 0 0	R CI Br OCF3 OCHF2 OCH2CF3	Me Me Me Me
Q CI CI CI CI CI	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me M H H H H	Br I is Cl Q Br Br Br Br Br Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me oth M H H H H H	1 Q CI CI CI CI CI CI CI CI CI CI CI CI CI	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me Me Me Me Me Me Me
O CI	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me H H H H H	Br I is Cl Q Br Br Br Br Br Br Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me oth Mo M H H H H H H H H H H H H H H H H H	1 0 0 0 0 0 0 0 0 0	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3	Me Me Me Me Me Me
Q CI CI CI CI CI CI CI CI CI CI CI CI CI	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3	Me M H H H H	Br I is Cl Q Br Br Br Br Br Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3	Me oth M H H H H H	1 Q CI CI CI CI CI CI CI CI CI CI CI CI CI	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3	Me Me Me Me Me Me Me
Q CI CI CI CI CI CI CI CI CI CI CI CI CI	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3	Me H H H H H	Br I is Cl Q Br Br Br Br Br Br Br	and V and U are b  R  Cl  Br  OCF3  OCHF2  OCH2CF3  OCF2CF3  OCF2CF2H  OCHFCF3  SCF3	Me oth Mo M H H H H H H H H H H H H H H H H H	1 0 0 0 0 0 0 0 0 0	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3	Me
	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3	Me M H H H H H	Br I is Cl Q Br Br Br Br Br Br Br Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3	oth Month H	1 2 0 0 0 0 0 0 0 0	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3	Me Me Me Me Me Me Me Me Me
	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3	Me H H H H H H	Br F is Cl Q Br	and V and U are b  R  Cl  Br  OCF3  OCHF2  OCH2CF3  OCF2CF3  OCF2CF2H  OCHFCF3  SCF3	Me oth M H H H H H H H	1 2 0 0 0 0 0 0 0 0 0	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3	Me
	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2	Me H H H H H H H	Br F is Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2	oth Mo M H H H H H H H H H H H H H H H H H		R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2	Me
	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3	Me H H H H H H H	Br F is Cl O Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3	Me oth M H H H H H H H H		R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3	Me
	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3	Me H H H H H H H H	Br Fis Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3	oth Mo M H H H H H H H H H H H H H H H H H		R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3	Me M
	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3	Me H H H H H H H H	Br Fis Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCH52 SCH2CF3 SCF2CF3 SCF2CF3	Me oth M H H H H H H H H H H H		R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF2H	Me M
	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3	Me H H H H H H H H H H H	Br Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3	Me oth M H H H H H H H H H H H		R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3	Me M
	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF2H SCHFCF3 SOCF3 SOCF3	Me HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Br Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF2H SCHFCF3 SOCF3	Me oth M H H H H H H H H H H H H H H H H H H H	* <b>O</b> CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF3	Me M
	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF3 SOCH2CF3	Me HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Br I is Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF2H SCHFCF3 SOCF3 SOCH52 SOCH52 SOCH52	oth M H H H H H H H H H H H H H H H H H H H	* <b>0</b> 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF3 SOCH2 SOCH2CF3	Me M
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SCF2CF3 SOCF3 SOCHF2 SOCH2CF3 SOCF2CF3	Me HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Br Fis Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF2H SCHFCF3 SOCF2CF3 SOCF53 SOCHFC53 SOCH52 SOCH52	oth Month H H H H H H H H H H H H H H H H H H H	* <b>Q</b>	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF2CF3 SOCF3 SOCF3	Me M
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	R CI Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF3 SOCH2CF3	Me HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Br Fis Cl Q Br	and V and U are b R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF3 SCF2CF3 SCF2CF2H SCHFCF3 SOCF3 SOCH52 SOCH52 SOCH52	oth M H H H H H H H H H H H H H H H H H H H	* <b>0</b> 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	R Cl Br OCF3 OCHF2 OCH2CF3 OCF2CF3 OCF2CF2H OCHFCF3 SCF3 SCHF2 SCH2CF3 SCF2CF2H SCHFCF3 SCF2CF2H SCHFCF3 SOCF3 SOCH2 SOCH2CF3	Me M

		7	r in Cl	and V and U are b	oth Me			
_Q_	R	м	Q	R	M	Q	R	<u>M</u>
Ci	SO <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Ci	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	н	Br	SO <sub>2</sub> CHF <sub>2</sub>	н	Ci	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Ci	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
CI	SO <sub>2</sub> CHFCF <sub>3</sub>	н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
Cl	CN	н	Br	CN	н	Cl	CN	Me
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Вг	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF3	Me	Br	SCHF <sub>2</sub>	Me
CI	I	Н	Br	I	н	1	ı ~	H
CI	Ī	Me	Br	Ī	Me	1	I	Me
			Ti	s Cl, V is I and U i	is H			
Q	R	M	Q	R	<u>M</u>	Q	R	<u>M</u>
Cl	Cl	H	Br	Cl Br	H	Cl Cl	Cl Br	Me Me
CI CI	Br OCF <sub>3</sub>	H	Br Br	OCF <sub>3</sub>	Н	Ci	OCF <sub>3</sub>	Me
CI	OCHF <sub>2</sub>	Н	Br	OCHF <sub>2</sub>	Н	CI	OCHF <sub>2</sub>	Me
C1	OCH <sub>2</sub> CF <sub>3</sub>	Н.	Br	OCH <sub>2</sub> CF <sub>3</sub>	Н	CI	OCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	Н	Br	OCF <sub>2</sub> CF <sub>3</sub>	H	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	OCF <sub>2</sub> CF <sub>2</sub> H	H	CI	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	OCHFCF <sub>3</sub>	Н	Br	OCHFCF <sub>3</sub>	Н	CI	OCHFCF <sub>3</sub>	Me
CI	SCF <sub>3</sub>	Н	Br	SCF <sub>3</sub>	H	CI	SCF <sub>3</sub>	Me
			Br	SCHF <sub>2</sub>	H	CI	SCHF <sub>2</sub>	Me
Cl	SCHF <sub>2</sub>	H	1	_		CI	-	Me
CI	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	H		SCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>3</sub>	Н	Br	SCF <sub>2</sub> CF <sub>3</sub>	H	CI	SCF <sub>2</sub> CF <sub>3</sub>	
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	CI	SCF <sub>2</sub> CF <sub>2</sub> H	Me
CI	SCHFCF <sub>3</sub>	H	Br	SCHFCF <sub>3</sub>	H	CI	SCHFCF <sub>3</sub>	Me
Cl	SOCF <sub>3</sub>	H	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me
CI	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	CI	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	CI	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF <sub>3</sub>	H	Br	SOCHFCF <sub>3</sub>	H	Cl	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me
Ci	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Cı	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Cı	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
CI	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Me

T is Cl, V is I and U is H									
_Q_	R	M	Q_	R	M	<u>Q</u> _	R CN	Me Me	
Cl	CN	H	Br Br	CN SOCF <sub>3</sub>	H Me	CI Br	Cl	Me	
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me	
Br B-	SO <sub>2</sub> CF <sub>3</sub>	Me Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me	
Br B-	SO <sub>2</sub> CHF <sub>2</sub>		Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	·Br	OCHF <sub>2</sub>	Me	
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me		SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me	
Br	SO <sub>2</sub> CHFCF <sub>3</sub> CN	Me Me	Br Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF3	Me	
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me	
Br		H	Br	I	Н	I	1	Н	
C1 Cl	I	Me	Br	Ī	Me	Ī	Ī	Me	
C.	•	1.10							
			<i>.</i>	OL 37 in Y 3 77 !-	. 1.7-				
Q	R	м	T 18	Cl, V is I and U is R	Me M	Q	R	M	
Ci	Cl	H	Br	Ci	H	CI	Cl	Me	
CI	Br	H	Br	Br	H	CI	Br	Me	
Cl	OCF <sub>3</sub>	н	Br	OCF <sub>3</sub>	H	CI	OCF <sub>3</sub>	Me	
Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	H	CI	OCHF <sub>2</sub>	Me	
Cl	OCH <sub>2</sub> CF <sub>3</sub>	H	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me	
CI	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	H	CI	OCF <sub>2</sub> CF <sub>3</sub>	Me	
CI	OCF <sub>2</sub> CF <sub>2</sub> H	H	Br	OCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me	
Cl	OCHFCF <sub>3</sub>	H	Br	OCHFCF <sub>3</sub>	H	Cl	OCHFCF <sub>3</sub>	Me	
Cl	SCF <sub>3</sub>	Н	Br	SCF <sub>3</sub>	H	CI	SCF <sub>3</sub>	Me Me	
Cl	SCHF <sub>2</sub>	H	Br	SCHF <sub>2</sub>	H	CI	SCHF <sub>2</sub>		
CI	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Н	Cl	SCF <sub>2</sub> CF <sub>2</sub> H	Me	
Cl	SCHFCF <sub>3</sub>	Н	Br	SCHFCF <sub>3</sub>	H	Cl	SCHFCF <sub>3</sub>	Me	
CI	SOCF <sub>3</sub>	H	Br	SOCF <sub>3</sub>	H	CI	SOCF <sub>3</sub>	Me	
Cl	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me	
CI	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF2CF2H	Me	
CI	SOCHFCF <sub>3</sub>	Н	Br	SOCHFCF <sub>3</sub>	H	Cl	SOCHFCF <sub>3</sub>	Me	
Cl	SO <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me Me	
CI	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>		
CI	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H H	C1 C1	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub> SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me Me	
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>		1			
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br D-	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	C1 C1	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me Me	
CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H H	CI	SO <sub>2</sub> CHFCF <sub>3</sub> CN	Me Me	
CI Br	CN SOCHFCF3	H Me	Br Br	CN SOCF <sub>3</sub>	Me	Br	CN Cl	Me	
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me	
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me	

			<b></b>	. em . v : - v	- > 4-			
Q	R	M	Q	CI, V is I and U i R	s me M	l Q	R	M
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF3	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF3	Me	Br	SCHF <sub>2</sub>	Me
Cl	1	Н	Br	I	Н	I	1 _	Н
Cl	I	Me	Br	I	Me	I	I	Me
			T	is F, V is 1 and U	in U			
_Q_	R	M	l Q	R R	M	l Q	R	M
Cl	Ci	H	Br	Cl	H	CI	Cl	Me
CI	Br	H	Br	Br	H	CI	Br	Me
CI	OCF <sub>3</sub>	H	Br	OCF <sub>3</sub>	H	Cl	OCF <sub>3</sub>	Me
Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	H	CI	OCHF <sub>2</sub>	Me
C1	OCH <sub>2</sub> CF <sub>3</sub>	H	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	CI	OCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	H	CI	OCF <sub>2</sub> CF <sub>3</sub>	Me
CI	OCF <sub>2</sub> CF <sub>2</sub> H	H	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me
CI	OCHFCF <sub>3</sub>	Н	Br	OCHFCF <sub>3</sub>	Н	Cl	OCHFCF <sub>3</sub>	Me
CI	SCF <sub>3</sub>	H	Br	SCF <sub>3</sub>	H	CI	SCF <sub>3</sub>	Me
Cl	SCHF <sub>2</sub>	H	Br	SCHF <sub>2</sub>	H	CI	SCHF <sub>2</sub>	Me
Cl	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me
CI	SCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SCF <sub>2</sub> CF <sub>2</sub> H	Me
CI	SCHFCF <sub>3</sub>	Н	Br	SCHFCF <sub>3</sub>	H	Ci	SCHFCF <sub>3</sub>	Me
Cl	SOCF <sub>3</sub>	Н	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	Н	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	н	CI	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF3	H	Br	SOCHFCF <sub>3</sub>	Н	CI	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me
CI	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	Н	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me
CI	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	CI	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Н	CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
Cl	CN	H	Br	CN	H	Cl	CN	Me
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me
Br D	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br -	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br B-	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me
Cl	I	Н	Br	I	H	I	I	H

T is F, V is I and U is H									
Q	R	M	Q	R	M	Q	R	M	
Cl	1	Me	Br	I.	Me	I	I	Me	
			Ті	s L V is Cl and U i	sН				
Q	R	М	Q	R	M	Q	R	<u>M</u>	
CI	Cl	H	Br	Cl	Н	Cl	Cl	Me	
Cl	Br	H	Br	Br	H	Cl Cl	Br OCF <sub>3</sub>	Me Me	
Cl	OCF <sub>3</sub>	Н	Br	OCF <sub>3</sub>	Н	Cl	OCHF <sub>2</sub>	Me	
Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	H	CI	-	Me	
Cl	OCH <sub>2</sub> CF <sub>3</sub>	H	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me	
CI	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	H		OCF <sub>2</sub> CF <sub>3</sub>	Me	
CI	OCF <sub>2</sub> CF <sub>2</sub> H	H	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me	
Cl	OCHFCF <sub>3</sub>	H	Br	OCHFCF3	Н	CI	OCHFCF <sub>3</sub> SCF <sub>3</sub>	Me	
CI	SCF <sub>3</sub>	Н	Br	SCF <sub>3</sub>	H	CI	-	Me	
CI	SCHF <sub>2</sub>	Н	Br	SCHF <sub>2</sub>	H	CI	SCHF <sub>2</sub>	Me	
C1	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	Н	Cl	SCH <sub>2</sub> CF <sub>3</sub>		
CI	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	CI	SCF <sub>2</sub> CF <sub>2</sub> H	Me	
Cl	SCHFCF <sub>3</sub>	H	Br	SCHFCF <sub>3</sub>	H	CI	SCHFCF <sub>3</sub>	Me	
Cl	SOCF <sub>3</sub>	H	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me	
Cl	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	CI	SOCHF <sub>2</sub>	Me	
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me	
CI	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Н	CI	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	
Cl	SOCHFCF <sub>3</sub>	H	Br	SOCHFCF <sub>3</sub>	H	Cl	SOCHFCF <sub>3</sub>	Me	
CI	so <sub>2</sub> cf <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me	
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	
CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	
CI	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	
Cl	CN	H	Br	CN	H	Cl	CN	Me	
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCF <sub>3</sub>	Me	Br	CI	Me	
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me	
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br _	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me	
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me	
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me	
Cl	Ţ	Н	Br	Ī	H	I	Ĭ	H	
Cl	1	Me	Br	I	Me	I	I	Me	

Table 2

T and V are both Cl and U is H Q Ci M R M R M CI CI CI Me H Br H Cl Cl Br Me Ci Br H Br Br Н OCF<sub>3</sub> Me OCF<sub>3</sub> Cl OCF<sub>3</sub> H Cl Н Br CI OCHF<sub>2</sub> Me CI OCHF<sub>2</sub> Н Br OCHF<sub>2</sub> Н Н Cl OCH<sub>2</sub>CF<sub>3</sub> Me CI OCH<sub>2</sub>CF<sub>3</sub> H Br OCH<sub>2</sub>CF<sub>3</sub> CI H Br OCF<sub>2</sub>CF<sub>3</sub> Н CI OCF<sub>2</sub>CF<sub>3</sub> Me OCF<sub>2</sub>CF<sub>3</sub> Cl Н OCF2CF2H H Cl OCF2CF2H Me OCF2CF2H Br OCHFCF<sub>3</sub> Cl Cl OCHFCF<sub>3</sub> H Br OCHFCF<sub>3</sub> H Me CI SCF<sub>3</sub> Н Br SCF<sub>3</sub> Н Cl SCF<sub>3</sub> Me Cl SCHF<sub>2</sub> Н Br SCHF<sub>2</sub> Н Cl SCHF<sub>2</sub> Me Cl CI SCH2CF3 Η Br SCH<sub>2</sub>CF<sub>3</sub> H SCH2CF3 Me CI SCF2CF3 Cl H Br SCF2CF3 Н SCF<sub>2</sub>CF<sub>3</sub> Me CI Н CI SCF2CF2H Br SCF2CF2H Н SCF2CF2H Me CI C1 SCHFCF3 Н Br SCHFCF<sub>3</sub> Н SCHFCF<sub>3</sub> Me Cl SOCF<sub>3</sub> SOCF<sub>3</sub> SOCF<sub>3</sub> Н Вг H Cl Me Cl SOCHF<sub>2</sub> Н Br SOCHF<sub>2</sub> H CI SOCHF2 Me CI SOCH<sub>2</sub>CF<sub>3</sub> Н Cl SOCH<sub>2</sub>CF<sub>3</sub> Br SOCH<sub>2</sub>CF<sub>3</sub> Н Me CI SOCF<sub>2</sub>CF<sub>3</sub> Н CI Br SOCF<sub>2</sub>CF<sub>3</sub> H SOCF<sub>2</sub>CF<sub>3</sub> Me CI H CI SOCF2CF2H Br SOCF2CF2H Н SOCF2CF2H Me Cl SOCHFCF3 H Br CI SOCHFCF3 Н SOCHFCF3 Me CI SO2CF3 H Br SO<sub>2</sub>CF<sub>3</sub> Н Cl Me SO<sub>2</sub>CF<sub>3</sub> CI SO2CHF2 SO<sub>2</sub>CHF<sub>2</sub> H Br SO<sub>2</sub>CHF<sub>2</sub> Н CI Me CI SO2CH2CF3 Н Br SO2CH2CF3 Н CI SO2CH2CF3 Me CI SO<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> Н Br Н CI SO<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> SO2CF2CF3 Me CI SO2CF2CF2H Н Br SO2CF2CF2H H CI SO2CF2CF2H Me SO<sub>2</sub>CHFCF<sub>3</sub> Cl SO<sub>2</sub>CHFCF<sub>3</sub> Н Br SO<sub>2</sub>CHFCF<sub>3</sub> Н CI Me CI CN Н Br CN H CI CN Me SOCF<sub>3</sub> Br SOCHFCF3 Me Br Me Br Cl Me Br SO<sub>2</sub>CF<sub>3</sub> Me Br SOCHF<sub>2</sub> Me Br Br Me Br SO<sub>2</sub>CHF<sub>2</sub> Me Br SOCH<sub>2</sub>CF<sub>3</sub> Me Br OCF<sub>3</sub> Me Br SO2CH2CF3 Me Вг SOCF2CF3 Me Br OCHF<sub>2</sub> Me Br SO<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> Me Br SOCF<sub>2</sub>CF<sub>2</sub>H Me Br OCH<sub>2</sub>CF<sub>3</sub> Me Вг SO<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>H Me Br Me Br OCF<sub>2</sub>CF<sub>3</sub> Me SCH<sub>2</sub>CF<sub>3</sub> OCF2CF2H Br SO<sub>2</sub>CHFCF<sub>3</sub> Me Br SCF<sub>2</sub>CF<sub>3</sub> Me Br Me Br CN Me Вг SCF<sub>2</sub>CF<sub>2</sub>H Me Br OCHFCF3 Me SCF<sub>3</sub> SCHF<sub>2</sub> Br Br Me Br SCHFCF<sub>3</sub> Me Me Cl I Н Br H 1 I н I

			T and T	V are both Cl and	U is H			
Q	R	M	Q	R	M	Q	R	M
Ci	I	Me	Br	I	Me	I	Ï	Me
		Т	and V	are both Cl and U	is CH	1		
Q	R	M	Q	R	M	Q	R	<u>M</u>
Q Cl	Cì	Н	Br	CI	Н	Cl	Cl Br	Me Me
Cl Cl	Br OCF <sub>3</sub>	H	Br Br	Br OCF <sub>3</sub>	H	CI CI	OCF <sub>3</sub>	Me
Cl	OCHF <sub>2</sub>	н	Br	OCHF <sub>2</sub>	н	Cl	OCHF <sub>2</sub>	Me
CI	OCH <sub>2</sub> CF <sub>3</sub>	н	Br	OCH <sub>2</sub> CF <sub>3</sub>	н	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me
CI	OCF <sub>2</sub> CF <sub>3</sub>	н	Br	OCF <sub>2</sub> CF <sub>3</sub>	н	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me
CI	OCF <sub>2</sub> CF <sub>2</sub> H	н	Br	OCF <sub>2</sub> CF <sub>2</sub> H	н	CI	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	OCHFCF <sub>3</sub>	н	Br	OCHFCF3	н	CI	OCHFCF <sub>3</sub>	Me
CI	SCF <sub>3</sub>	н	Br	SCF <sub>3</sub>	н	Ci	SCF <sub>3</sub>	Me
CI	SCHF <sub>2</sub>	н	Br	SCHF <sub>2</sub>	н	Cl	SCHF <sub>2</sub>	Me
CI	SCH <sub>2</sub> CF <sub>3</sub>	н	Br	SCH <sub>2</sub> CF <sub>3</sub>	н	CI	SCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SCF <sub>2</sub> CF <sub>3</sub>	Н	Br	SCF <sub>2</sub> CF <sub>3</sub>	н	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	Н	Вг	SCF <sub>2</sub> CF <sub>2</sub> H	н	Cl	SCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SCHFCF3	н	Br	SCHFCF3	н	Cl	SCHFCF3	Me
Cl	SOCF <sub>3</sub>	Н	Br	SOCF <sub>3</sub>	н	CI	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	н	Br	SOCHF <sub>2</sub>	н	CI	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	н	Br	SOCH <sub>2</sub> CF <sub>3</sub>	н	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	н	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H.	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Н	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF3	н	Br	SOCHFCF3	Н	Cl	SOCHFCF3	Me
CI	SO <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me
CI	SO <sub>2</sub> CHF <sub>2</sub>	Н	Br	SO <sub>2</sub> CHF <sub>2</sub>	н	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SO2CF2CF2H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
Cl	CN	Н	Br	CN	н	Cl	CN	Me
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me
Cl	1	H	Br	I	H	I	Ī	Н
Cl	I	Me	Br	1	Me	I	I	Me
			T is Cl	and V and U are	both M	e		
<u>Q</u>	R	<u>M</u>	LQ.	R	M	18	R	<u>M</u>
CI	Cl Br	H H	Br Br	Cl Br	H H	Cl	Cl Br	Me Me
CI CI	OCF <sub>3</sub>	H	Br	OCF <sub>3</sub>	H	Ci	OCF <sub>3</sub>	Me
٠.	J 5. 3	••	i	3		1	3	

				424 477 1	-4- 1.6-			
0	R	T M	is Cl	and V and U are b R	oun Me	Q	R	M
- Q Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	H	CI	OCHF <sub>2</sub>	Me
Cl	OCH <sub>2</sub> CF <sub>3</sub>	н	Br	OCH <sub>2</sub> CF <sub>3</sub>	н	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	н	Br	OCF2CF3	н	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>2</sub> H	н	Br	OCF2CF2H	н	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	OCHFCF3	н	Br	OCHFCF <sub>3</sub>	н	Cl	OCHFCF3	Me
Cl	SCF <sub>3</sub>	н	Br	SCF <sub>3</sub>	н	Cl	SCF <sub>3</sub>	Me
Cl	SCHF <sub>2</sub>	н	Br	SCHF <sub>2</sub>	н	CI	SCHF <sub>2</sub>	Me
Cl	SCH <sub>2</sub> CF <sub>3</sub>	н	Br	SCH <sub>2</sub> CF <sub>3</sub>	н	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>3</sub>	н	Br	SCF <sub>2</sub> CF <sub>3</sub>	Н	CI	SCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	н	Br	SCF <sub>2</sub> CF <sub>2</sub> H	н	Cl	SCF2CF2H	Me
Cl	SCHFCF3	н	Br	SCHFCF <sub>3</sub>	н	Cl	SCHFCF <sub>3</sub>	Me
Cl	SOCF <sub>3</sub>	н	Br	SOCF <sub>3</sub>	н	CI	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	н	Br	SOCHF <sub>2</sub>	H	CI	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Н	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	н	Br	SOCF <sub>2</sub> CF <sub>3</sub>	н	Ci	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF3	Н	Br	SOCHFCF <sub>3</sub>	Н	Cl	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	CI	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Ċl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
CI	CN	H	Br	CN	Н	Cl	CN	Me
Br	SOCHFCF <sub>3</sub>	Me	Вг	SOCF <sub>3</sub>	Me	Br	Cl	Me
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me H
Cl Cl	I I	H Me	Br Br	I I	H Me	I	Ĭ	Me
Cı	.*	1410		•	2.120		-	2.22
			Тi	s Cl, V is I and U	is H			
_Q_	R	M	10	R	M_	1 Q	R	M
CI	Cl	H	Br	Cl	н	Ci	CI	Me
Cl Cl	Br OCF	H H	Br Br	Br OCF <sub>3</sub>	H H	CI	Br OCF <sub>3</sub>	Me Me
Cl	OCF <sub>3</sub> OCHF <sub>2</sub>	п Н	Br	OCF3 OCHF2	H	CI	OCHF <sub>2</sub>	Me
Cl	OCH <sub>2</sub> CF <sub>3</sub>	Н	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	Cı	OCH <sub>2</sub> CF <sub>3</sub>	Me
Cl		H	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	CI	OCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	н	Br	OCF <sub>2</sub> CF <sub>2</sub> H	H	CI	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	OCF <sub>2</sub> CF <sub>2</sub> H OCHFCF <sub>3</sub>	H	Br	OCHFCF <sub>3</sub>	H	CI	OCHFCF <sub>3</sub>	Me
Cl	SCF <sub>3</sub>	H	Br	SCF <sub>3</sub>	H	CI	SCF <sub>3</sub>	Me
- L	50x3	11	, _,	5 × 5		ı –.	~ 3	

			· Ti	s Cl, V is I and U i	. U			
_Q_	R	M	١٥,	R CI, VISIAMU OI	M	Q	R	M
Ci	SCHF <sub>2</sub>	H	Br	SCHF <sub>2</sub>	H	CI	SCHF <sub>2</sub>	Me
Cl	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	H	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF2CF2H	H	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	CI	SCF <sub>2</sub> CF <sub>2</sub> H	Me
· Cl	SCHFCF3	Н	Br	SCHFCF <sub>3</sub>	H	Cl	SCHFCF <sub>3</sub>	Me
Cl	SOCF <sub>3</sub>	H	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me
Cì	SOCH <sub>2</sub> CF <sub>3</sub>	H	Br	SOCH <sub>2</sub> CF <sub>3</sub>	H	Cı	SOCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SOCF <sub>2</sub> CF <sub>3</sub>	H	Br	SOCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF3	H	Br	SOCHFCF <sub>3</sub>	H	C1	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	CI	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	CI	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
CI	CN	H	Br	CN	H	CI	CN	Me
Br	SOCHFCF <sub>3</sub>	Me	Br	SOCF <sub>3</sub>	Me	Br	CI	Me
Br	so <sub>2</sub> cf <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Вт	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me
Cl	I	H	Br	I	Н	I	Ī	H
CI	I	Me	Br	I	Me	I	1	Me
_	~			Cl, V is I and U is	_ (		_	
$\frac{Q}{CI}$	Cl R	M H	Q Br	R Cl	H	Q Cl	R Cl	M Me
Ci	Br	н	Br	Br	H	Ci	Br	Me
Cl	OCF <sub>3</sub>	H	Br	OCF <sub>3</sub>	н	CI	OCF <sub>3</sub>	Me
Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	н	CI	OCHF <sub>2</sub>	Me
Cl	OCH <sub>2</sub> CF <sub>3</sub>	Н	Br	OCH <sub>2</sub> CF <sub>3</sub>	Н	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	H	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	OCF <sub>2</sub> CF <sub>2</sub> H	н	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	OCHFCF <sub>3</sub>	Н	Br	OCHFCF3	Н	Cl	OCHFCF3	Me
Cl	SCF <sub>3</sub>	H	Br	SCF <sub>3</sub>	н	Cl	SCF <sub>3</sub>	Me
Cl	SCHF <sub>2</sub>	н	Br	SCHF <sub>2</sub>	н	CI	SCHF <sub>2</sub>	Me
Cì	SCH <sub>2</sub> CF <sub>3</sub>	н	Br	SCH <sub>2</sub> CF <sub>3</sub>	н	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	H	CI	SCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	CI	SCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SCHFCF <sub>3</sub>	Н	Br	SCHFCF <sub>3</sub>	H	Cl	SCHFCF <sub>3</sub>	Me
			-			-		

24

			Τ:0	Cl, V is I and U is	Me			
_Q_	R	M	l Q "	R R	M	Q	R _	M
Cì	SOCF <sub>1</sub>	Н	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	н	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Н	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Н	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Н	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF3	Н	Br	SOCHFCF3	H	Cl	SOCHFCF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CF <sub>3</sub>	H	CI	SO <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CHF <sub>2</sub>	H	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me
C1	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	H	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Me
CI	CN	Н	Br	CN	H	Cl	CN	Me
Br	SOCHFCF3	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Вг	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF2CF2H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF <sub>3</sub>	Me
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me
Cl	I	Н	Br	I	Н	1	I	H
Cl	1	Me	Br	I	Me	1	1	Me
			Ti	is F, V is I and U i	a H			
_Q_	R	M	Q	R	M	Q	R	<u>M</u>
CI	Cl	Н	Br	Cl	H	Cl	Cl	Me
CI Cl	Br OCF <sub>3</sub>	H	Br Br	Br OCF <sub>3</sub>	H	CI CI	Br OCF <sub>3</sub>	Me Me
CI	OCHF <sub>2</sub>	н	Br	OCHF <sub>2</sub>	н	Cl	OCHF <sub>2</sub>	
CI	OCH <sub>2</sub> CF <sub>3</sub>	H	Br	OCH <sub>2</sub> CF <sub>3</sub>	н	Ci	~	Me Me
Cl	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	н	Cl	OCH <sub>2</sub> CF <sub>3</sub>	
Ci	OCF <sub>2</sub> CF <sub>2</sub> H	H	Br	OCF <sub>2</sub> CF <sub>3</sub> OCF <sub>2</sub> CF <sub>2</sub> H	н	Cl	OCF-CF-W	Me
CI	OCHFCF <sub>3</sub>	Н	Br	OCHFCF3	Н	CI	OCF <sub>2</sub> CF <sub>2</sub> H	Me
			_		_		OCHFCF <sub>3</sub>	Me
Cl Cl	SCF <sub>3</sub>	Н	Br	SCF <sub>3</sub>	H	Cl	SCF <sub>3</sub>	Me
	SCHF <sub>2</sub>	Н	Br	SCHF <sub>2</sub>	Н	CI	SCHF <sub>2</sub>	Me
Cl	SCH <sub>2</sub> CF <sub>3</sub>	н	Br	SCH <sub>2</sub> CF <sub>3</sub>	H	CI	SCH <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SCF <sub>2</sub> CF <sub>2</sub> H	H	C1	SCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SCHFCF <sub>3</sub>	H	Br	SCHFCF <sub>3</sub>	H	Cl	SCHFCF <sub>3</sub>	Me
Cl	SOCF <sub>3</sub>	Н	Br	SOCF <sub>3</sub>	H	Cl	SOCF <sub>3</sub>	Me
Cl	SOCHF <sub>2</sub>	H	Br	SOCHF <sub>2</sub>	H	Cl	SOCHF <sub>2</sub>	Me
Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Н	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Н	Ci	SOCH <sub>2</sub> CF <sub>3</sub>	Me
CI	SOCF <sub>2</sub> CF <sub>3</sub>	H	Вг	SOCF <sub>2</sub> CF <sub>3</sub>	H	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me
CI	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	H	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me
Cl	SOCHFCF <sub>3</sub>	H	Br	SOCHFCF <sub>3</sub>	H	CI	SOCHFCF <sub>3</sub>	Me

25

	T is F, V is I and U is H										
_Q_	R	M	Q	<u>R</u>	M	Q	R	_M_			
Cl	SO <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SO <sub>2</sub> CHF <sub>2</sub>	Н	Br	SO <sub>2</sub> CHF <sub>2</sub>	H	Cl	SO <sub>2</sub> CHF <sub>2</sub>	Me			
Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	H	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Н	Br	SO2CF2CF2H	Н	Cl	SO2CF2CF2H	Me			
Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	н	Cl	SO <sub>2</sub> CHFCF <sub>3</sub>	Me			
Cl	CN	Н	Br	CN	Н	CI	CN	Me			
Br	SOCHFCF3	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me			
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me			
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me			
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me			
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me			
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me			
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Me			
Br	CN	Me	Br	SCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCHFCF3	Me			
Br	SCF <sub>3</sub>	Me	Br	SCHFCF3	Me	Br	SCHF <sub>2</sub>	Me			
CI	I	Н	Br	I	Н	I	1	H			
Cl	I	Me	Br	I	Me	I	I	Me			
			<b></b> :		- **						
_Q	R	M	0	s I, V is Cland U i R	s H M	Q	R	M			
- <del>C</del> i	Ci	Н	Br	CI	H	cī	Cl	Me			
CI	Br	Н	Br	Br	H	Cl	Br	Me			
Cl	OCF <sub>3</sub>	H	Br	OCF <sub>3</sub>	H	Cl	OCF <sub>3</sub>	Me			
Cl	OCHF <sub>2</sub>	H	Br	OCHF <sub>2</sub>	H	Cl	OCHF <sub>2</sub>	Me			
Cl	OCH <sub>2</sub> CF <sub>3</sub>	H	Br	OCH <sub>2</sub> CF <sub>3</sub>	H	Cl	OCH <sub>2</sub> CF <sub>3</sub>	Me			
Cl	OCF <sub>2</sub> CF <sub>3</sub>	H	Br	OCF <sub>2</sub> CF <sub>3</sub>	Н	Cl	OCF <sub>2</sub> CF <sub>3</sub>	Me			
Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Br	OCF <sub>2</sub> CF <sub>2</sub> H	Н	Cl	OCF <sub>2</sub> CF <sub>2</sub> H	Me			
Cl	OCHFCF <sub>3</sub>	н	Br	OCHFCF <sub>3</sub>	Н	Cl	OCHFCF3	Me			
CI	SCF <sub>3</sub>	H	Br	SCF <sub>3</sub>	H	Cl	SCF <sub>3</sub>	Me			
Cl	SCHF <sub>2</sub>	Н	Br	SCHF <sub>2</sub>	Н	Cl	SCHF <sub>2</sub>	Me			
Cl	SCH <sub>2</sub> CF <sub>3</sub>	H	Br	SCH <sub>2</sub> CF <sub>3</sub>	Н	Cl	SCH <sub>2</sub> CF <sub>3</sub>	Me			
CI	SCF <sub>2</sub> CF <sub>3</sub>	H	Br	SCF <sub>2</sub> CF <sub>3</sub>	н	Cl	SCF <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SCF <sub>2</sub> CF <sub>2</sub> H	н	Br	SCF2CF2H	н	C1	SCF <sub>2</sub> CF <sub>2</sub> H	Me			
CI	SCHFCF3	Н	Br	SCHFCF <sub>3</sub>	н	Cl	SCHFCF3	Me			
Cl	SOCF <sub>3</sub>	н	Br	SOCF <sub>3</sub>	н	Cl	SOCF <sub>3</sub>	Me			
CI	SOCHF <sub>2</sub>	н	Br	SOCHF <sub>2</sub>	н	CI	SOCHF <sub>2</sub>	Me			
CI	SOCH <sub>2</sub> CF <sub>3</sub>	н	Br	SOCH <sub>2</sub> CF <sub>3</sub>	н	Cl	SOCH <sub>2</sub> CF <sub>3</sub>	Me			
CI	SOCF <sub>2</sub> CF <sub>3</sub>	н	Br	SOCF <sub>2</sub> CF <sub>3</sub>	н	Cl	SOCF <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	н	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	н	Cl	SOCF <sub>2</sub> CF <sub>2</sub> H	Me			
Cl	SOCHFCF3	н	Br	SOCHFCF3	н	Cl	SOCHFCF3	Me			
CI	SO <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CF <sub>3</sub>	Me			
CI	SO <sub>2</sub> CHF <sub>2</sub>	н	Br	SO <sub>2</sub> CHF <sub>2</sub>	н	CI	SO <sub>2</sub> CHF <sub>2</sub>	Me			
CI	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	н	Cl	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me			
Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	н	CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me			
CI	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	н	Cl	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me			
CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Н	Br	SO <sub>2</sub> CHFCF <sub>3</sub>	н	CI	SO <sub>2</sub> CHFCF <sub>3</sub>	Me			
CI	302cm cr3	1.1	DI	SUZUMERS	n	U	302CHFCF3	IAIC			

T is I, V is Cl and U is H									
Q	R	M	Q	. R	M	Q	R	<u>M</u>	
CI	CN	Н	Br	CN	H	Cl	CN	Me	
Br	SOCHFCF3	Me	Br	SOCF <sub>3</sub>	Me	Br	Cl	Me	
Br	SO <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCHF <sub>2</sub>	Me	Br	Br	Me ·	
Br	SO <sub>2</sub> CHF <sub>2</sub>	Me	Br	SOCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCHF <sub>2</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	Me	Br	SOCF <sub>2</sub> CF <sub>2</sub> H	Me	Br	OCH <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> H	Me	Br	SCH <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF <sub>2</sub> CF <sub>3</sub>	Me	
Br	SO <sub>2</sub> CHFCF <sub>3</sub>	Me	Br	SCF <sub>2</sub> CF <sub>3</sub>	Me	Br	OCF2CF2H	Me	
Br	CN	Me	Br	SCF2CF2H	Me	Br	OCHFCF3	Me	
Br	SCF <sub>3</sub>	Me	Br	SCHFCF <sub>3</sub>	Me	Br	SCHF <sub>2</sub>	Me	
Cl	ı	Н	Br	I	H	I	I	H	
Cl	Ī	Me	Br	I	Me	I	I	Me	

Table 3

Q	$\mathbb{R}^2$	U	Q	$\mathbb{R}^2$	บ	Q	R <sup>2</sup>	U
ī	H	H	I	Me	H	I	H	Me
OCHF <sub>2</sub>	H	H	OCHF <sub>2</sub>	Me	H	OCHF <sub>2</sub>	H	Me
OCH <sub>2</sub> F	Н	Н	OCH <sub>2</sub> F	Me	H	OCH <sub>2</sub> F	H	Me
OCF <sub>2</sub> Cl	H	H	OCF <sub>2</sub> Cl	Me	H	OCF <sub>2</sub> Cl	H	Me
OCH <sub>2</sub> CF <sub>3</sub>	H	H	OCH <sub>2</sub> CF <sub>3</sub>	Me	H	OCH <sub>2</sub> CF <sub>3</sub>	H	Me
Et	H	н	Et	Me	н	Et	H	Me
CN	H	H	CN	Me	H	CN	H	Me
SCF <sub>3</sub>	H	H	SCF <sub>3</sub>	Me	H	SCF <sub>3</sub>	H	Me
SCHF <sub>2</sub>	H	H	SCHF <sub>2</sub>	Me	H	SCHF <sub>2</sub>	H	Me
SCH <sub>2</sub> F	H	H	SCH <sub>2</sub> F	Me	H	SCH <sub>2</sub> F	H	Me
Ph	H	H	Ph	Me	H	Ph	H	Me
SiMe <sub>3</sub>	H	H	SiMe <sub>3</sub>	Me	H	SiMe <sub>3</sub>	H	Me
I	Me	Me	CN	Me	Me	SCHF <sub>2</sub>	Me	Me
OCHF <sub>2</sub>	Me	Me	SCF <sub>3</sub>	Me	Me	SCH <sub>2</sub> F	Me	Me
OCH <sub>2</sub> F	Me	Me	OCH <sub>2</sub> CF <sub>3</sub>	Me	Me	Ph	Me	Me
OCF <sub>2</sub> Cl	Me	Me	Et	Me	Me	SiMe <sub>3</sub>	Me	Me

27

Table 4

Q	_R <sup>2</sup> _	U	Q	R <sup>2</sup>	U	Q	R <sup>2</sup>	U
I	H	H	I	Me	H	I	H	Me
OCHF <sub>2</sub>	H	H	OCHF <sub>2</sub>	Me	H	OCHF <sub>2</sub>	H	Me
OCH <sub>2</sub> F	H	H	OCH <sub>2</sub> F	Me	H	OCH <sub>2</sub> F	Н	Me
OCF <sub>2</sub> Cl	H	H	OCF <sub>2</sub> Cl	Me	H	OCF <sub>2</sub> Cl	H	Me
OCH <sub>2</sub> CF <sub>3</sub>	H	H	OCH <sub>2</sub> CF <sub>3</sub>	Me	H	OCH <sub>2</sub> CF <sub>3</sub>	H	Me
Et	Н	H	Et	Me	H	Et	H	Me
CN	H	H	CN	Me	H	CN	H	Me
SCF <sub>3</sub>	H	H	SCF <sub>3</sub>	Me	H	SCF <sub>3</sub>	H	Me
SCHF <sub>2</sub>	H	Н	SCHF <sub>2</sub>	Me	H	SCHF <sub>2</sub>	H	Me
SCH <sub>2</sub> F	H	H	SCH <sub>2</sub> F	Me	H	SCH <sub>2</sub> F	H	Me
Ph	H	Н	Ph	Me	H	Ph	H	Me
SiMe <sub>3</sub>	H	H	SiMe <sub>3</sub>	Me	Н	SiMe <sub>3</sub>	H	Me
I	Me	Me	CN	Me	Me	SCHF <sub>2</sub>	Me	Me
OCHF <sub>2</sub>	Me	Me	SCF <sub>3</sub>	Me	Me	SCH <sub>2</sub> F	Me	Me
OCH <sub>2</sub> F	Me	Me	OCH <sub>2</sub> CF <sub>3</sub>	Me	Me	Ph	Me	Me
OCF <sub>2</sub> CI	Me	Me	Et	Me	Me	SiMe <sub>3</sub>	Me	Me

Table 5

Q	_R <sup>2</sup>	υ	Q ·	R <sup>2</sup>	U	Q	$\mathbb{R}^2$	U
I	Н	Н	I	Me	H	I	H	Me
OCHF <sub>2</sub>	H	Н	OCHF <sub>2</sub>	Me	H	OCHF <sub>2</sub>	H	Me
OCH <sub>2</sub> F	H	H	OCH <sub>2</sub> F	Me	H	OCH <sub>2</sub> F	H	Me
OCF <sub>2</sub> Cl	H	H	OCF <sub>2</sub> CI	Me	H	OCF <sub>2</sub> CI	H	Me
OCH <sub>2</sub> CF <sub>3</sub>	H	H	OCH <sub>2</sub> CF <sub>3</sub>	Me	H	OCH <sub>2</sub> CF <sub>3</sub>	H	Me
Et	H	H	Et	Me	H	Et	H	Me
CN	H	H	CN	Me	H	CN	· H	Me
SCF <sub>3</sub>	H	H	SCF <sub>3</sub>	Me	H	SCF <sub>3</sub>	H	Me
SCHF <sub>2</sub>	H	H	SCHF <sub>2</sub>	Me	H	SCHF <sub>2</sub>	H	Me
SCH <sub>2</sub> F	Н	H	SCH <sub>2</sub> F	Me	H	SCH <sub>2</sub> F	H	Me
Ph	H	H	Pb	Me	H	Ph	H	Me
SiMe <sub>3</sub>	H	H	SiMe <sub>3</sub>	Me	H	SiMe <sub>3</sub>	H	Me

10

15

20

	Q	R <sup>2</sup>	U	Q	$\mathbb{R}^2$	ប	Q	R <sup>2</sup>	U
-	ı	Me	Me	CN	Me	Me	SCHF <sub>2</sub>	Me	Me
	OCHF <sub>2</sub>	Me	Me	. SCF <sub>1</sub>	Me	Me	SCH <sub>2</sub> F	Me	Me
	OCH <sub>2</sub> F	Me	Me	OCH <sub>2</sub> CF <sub>3</sub>	Me	Me	Ph	Me	Me
	OCF <sub>2</sub> Cl	Me	Me	Et	Me	Me	SiMe <sub>3</sub>	Me	Me

The fungicides of component (b) of the compositions of the invention are selected from the group consisting of

- (b1) alkylenebis(dithiocarbamate) fungicides;
- (b2) compounds acting at the  $bc_1$  complex of the fungal mitochondrial respiratory electron transfer site;
  - (b3) cymoxanil;
  - (b4) compounds acting at the demethylase enzyme of the sterol biosynthesis pathway;
  - (b5) morpholine and piperidine compounds that act on the sterol biosynthesis pathway;
  - (b6) phenylamide fungicides;
  - (b7) pyrimidinone fungicides;
  - (b8) phthalimides; and
  - (b9) fosetyl-aluminum.

The weight ratios of component (b) to component (a) typically is from 100:1 to 1:100, preferably is from 30:1 to 1:30, and more preferably is from 10:1 to 1:10. Of note are compositions wherein the weight ratio of component (b) to component (a) is from 10:1 to 1:1. Included are compositions wherein the weight ratio of component (a) is from 9:1 to 4.5:1.

## The bc<sub>1</sub> Complex Fungicides (component (b2))

Strobilurin fungicides such as azoxystrobin, kresoxim-methyl, metominostrobin/fenominostrobin (SSF-126), picoxystrobin, pyraclostrobin and trifloxystrobin are known to have a fungicidal mode of action which inhibits the  $bc_1$ complex in the mitochondrial respiration chain (Angew. Chem. Int. Ed., 1999, 38, 1328-1349). Methyl (E)-2-[[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy]- $\alpha$ -(methoxyimino)benzeneacetate (also known as azoxystrobin) is described as a  $bc_1$  complex 25 inhibitor in Biochemical Society Transactions 1993, 22, 68S. Methyl (E)-a-(methoxyimino)-2-[(2-methylphenoxy)methyl]benzeneacetate (also known as kresoximmethyl) is described as a bc1 complex inhibitor in Biochemical Society Transactions 1993, 22, 64S. (E)-2-[(2,5-Dimethylphenoxy)methyl]- $\alpha$ -(methoxyimino)-Nmethylbenzeneacetamide is described as a bc1 complex inhibitor in Biochemistry and Cell 30 Biology 1995, 85(3), 306-311. Other compounds that inhibit the  $bc_1$  complex in the mitochondrial respiration chain include famoxadone and fenamidone.

The  $bc_1$  complex is sometimes referred to by other names in the biochemical literature, including complex III of the electron transfer chain, and ubihydroquinone:cytochrome c oxidoreductase. It is uniquely identified by the Enzyme Commission number EC1.10.2.2.

. 15

20

25

30

WO 03/080576 PCT/US03/08179

The  $bc_1$  complex is described in, for example, J. Biol. Chem. 1989, 264, 14543-38; Methods Enzymol. 1986, 126, 253-71; and references cited therein.

29

The Sterol Biosynthesis Inhibitor Fungicides (component (b4) or (b5))

The class of sterol biosynthesis inhibitors includes DMI and non-DMI compounds, that control fungi by inhibiting enzymes in the sterol biosynthesis pathway. DMI fungicides have a common site of action within the fungal sterol biosynthesis pathway; that is, an inhibition of demethylation at position 14 of lanosterol or 24-methylene dihydrolanosterol, which are precursors to sterols in fungi. Compounds acting at this site are often referred to as demethylase inhibitors, DMI fungicides, or DMIs. The demethylase enzyme is sometimes referred to by other names in the biochemical literature, including cytochrome P-450 (14DM). The demethylase enzyme is described in, for example, J. Biol. Chem. 1992, 267, 13175-79 and references cited therein. DMI fungicides fall into several classes: azoles (including triazoles and imidazoles), pyrimidines, piperazines and pyridines. The triazoles includes bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, ipconazole, metconazole, penconazole, propiconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole and uniconazole. The imidazoles include clotrimazole, econazole, imazalil, isoconazole, miconazole and prochloraz. The pyrimidines include fenarimol, nuarimol and triarimol. The piperazines include triforine. The pyridines include buthiobate and pyrifenox. Biochemical investigations have shown that all of the above mentioned fungicides are DMI fungicides as described by K. H. Kuck, et al. in Modern Selective Fungicides - Properties, Applications and Mechanisms of Action, Lyr, H., Ed.; Gustav Fischer Verlag: New York, 1995, 205-258.

The DMI fungicides have been grouped together to distinguish them from other sterol biosynthesis inhibitors, such as, the morpholine and piperidine fungicides. The morpholines and piperidines are also sterol biosynthesis inhibitors but have been shown to inhibit later steps in the sterol biosynthesis pathway. The morpholines include aldimorph, dodemorph, fenpropimorph, tridemorph and trimorphamide. The piperidines include fenpropidin. Biochemical investigations have shown that all of the above mentioned morpholine and piperidine fungicides are sterol biosynthesis inhibitor fungicides as described by K. H. Kuck, et al. in *Modern Selective Fungicides - Properties, Applications and Mechanisms of Action*, Lyr, H., Ed.; Gustav Fischer Verlag: New York, 1995, 185-204.

Pyrimidinone Fungicides (component (b7))

Pyrimidinone fungicides include compounds of Formula II

$$R^3$$
 $R^1$ 
 $R^2$ 
 $R^2$ 
 $R^2$ 

#### wherein

10

15

20

G is a fused phenyl, thiophene or pyridine ring;

 $R^1$  is  $C_1$ - $C_6$  alkyl;

 $R^2$  is  $C_1$ - $C_6$  alkyl or  $C_1$ - $C_6$  alkoxy;

R<sup>3</sup> is halogen; and

R<sup>4</sup> is hydrogen or halogen.

Pyrimidinone fungicides are described in International Patent Application WO94/26722, U.S. Patent No. 6,066,638, U.S. Patent No. 6,245,770, U.S. Patent No. 6,262,058 and U.S. Patent No. 6,277,858.

Of note are pyrimidinone fungicides selected from the group:

6-bromo-3-propyl-2-propyloxy-4(3H)-quinazolinone,

6,8-diiodo-3-propyl-2-propyloxy-4(3H)-quinazolinone,

6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone,

6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one,

6-bromo-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one,

7-bromo-2-propoxy-3-propylthieno[3,2-d]pyrimidin-4(3H)-one,

6-bromo-2-propoxy-3-propylpyrido[2,3-d]pyrimidin-4(3H)-one,

6,7-dibromo-2-propoxy-3-propylthieno[3,2-d]pyrimidin-4(3H)-one, and

3-(cyclopropylmethyl)-6-iodo-2-(propylthio)pyrido[2,3-d]pyrimidin-4(3H)-one.

#### Table 7

#### Examples of component (b)

- (b1) Alkylenebis(dithiocarbamate)s such as mancozeb, maneb, propineb and zineb
- (b3) Cymoxanil
- (b6) Phenylamides such as metalaxyl, benalaxyl and oxadixyl
- (b8) Phthalimids such as folpet or captan
- (b9) Fosetyl-aluminum

Other fungicides which can be included in compositions of this invention in combination with a Formula I compound or as an additional component in combination with component (a) and component (b) are acibenzolar, benalaxyl, benomyl, blasticidin-S,

Bordeaux mixture (tribasic copper sulfate), carpropamid, captafol, captan, carbendazim, chloroneb, chlorothalonil, copper oxychloride, copper salts such as copper sulfate and copper hydroxide, cyazofamid, cymoxanil, cyprodinil, (S)-3,5-dichloro-N-(3-chloro-1-ethyl-1-

31

methyl- 2-oxopropyl)-4-methylbenzamide (RH 7281), diclocymet (S-2900), diclomezine, dicloran, dimethomorph, diniconazole-M, dodemorph, dodine, edifenphos, fencaramid (SZX0722), fenpiclonil, fentin acetate, fentin hydroxide, fluazinam, fludioxonil, flumetover (RPA 403397), flutolanil, folpet, fosetyl-aluminum, furalaxyl, furametapyr (S-82658), iprobenfos, iprodione, isoprothiolane, iprovalicarb, kasugamycin, mancozeb, maneb, mefenoxam, mepronil, metalaxyl, metiram-zinc, myclobutanil, neo-asozin (ferric methanearsonate), oxadixyl, pencycuron, prochloraz, procymidone, propamocarb, propineb, pyrifenox, pyrimethanil, pyroquilon, quinoxyfen, spiroxamine, sulfur, thifluzamide, thiophanate-methyl, thiram, triadimefon, tricyclazole, validamycin, vinclozolin, zineb and zoxamid.

Descriptions of the commercially available compounds listed above may be found in *The Pesticide Manual, Twelfth Edition*, C.D.S. Tomlin, ed., British Crop Protection Council, 2000.

10

15

20

25

30

Of note are combinations of Formula I with fungicides of a different biochemical mode of action (e.g. mitochondrial respiration inhibition, inhibition of protein synthesis by interference of the synthesis of ribosomal RNA or inhibition of beta-tubulin synthesis) that can be particularly advantageous for resistance management. Examples include combinations of compounds of Formula I (e.g. Compound 1) with strobilurins such as azoxystrobin, kresoxim-methyl, pyraclostrobin and trifloxystrobin; carbendazim, mitochondrial respiration inhibitors such as famoxadone and fenamidone; benomyl, cymoxanil; dimethomorph; folpet; fosetyl-aluminum; metalaxyl; mancozeb and maneb. These combinations can be particularly advantageous for resistance management, especially where the fungicides of the combination control the same or similar diseases.

Of note are combinations of Formula I with fungicides for controlling grape diseases (e.g. Plasmopara viticola, Botrytis cinerea and Uncinula necatur) including alkylenebis(dithiocarbamate)s such as mancozeb, maneb, propineb and zineb, phthalimids such as folpet, copper salts such as copper sulfate and copper hydroxide, strobilurins such as azoxystrobin, pyraclostrobin and trifloxystrobin, mitochondrial respiration inhibitors such as famoxadone and fenamidone, phenylamides such as metalaxyl, phosphonates such as fosetyl-Al, dimethomorph, pyrimidinone fungicides such as 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone and 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, and other fungicides such as cymoxanil.

Of note are combinations of Formula I with fungicides for controlling potato diseases (e.g. *Phytophthora infestans*, *Alternaria solani* and *Rhizoctonia solani*) including alkylenebis(dithiocarbamate)s such as mancozeb, maneb, propineb and zineb; copper salts such as copper sulfate and copper hydroxide; strobilurins such as pyraclostrobin and trifloxystrobin; mitochondrial respiration inhibitors such as famoxadone and fenamidone; phenylamides such as metalaxyl; carbamates such as propamocarb; phenylpyridylamines

such as fluazinam and other fungicides such as chlorothalonil, cyazofamid, cymoxanil, dimethomorph, zoxamid and iprovalicarb.

Of note are compositions wherein component (b) comprises at least one compound from each of two different groups selected from (b1), (b2), (b3), (b4), (b5), (b6), (b7), (b8) and (b9). The weight ratio of the compound(s) of the first of these two component (b) groups to the compound(s) of the second of these component (b) groups typically is from 100:1 to 1:100, more typically from 30:1 to 1:30 and most typically from 10:1 to 1:10.

5

10

15

20

25

30

35

Of note are compositions wherein component (b) comprises at least one compound selected from (b1), for example mancozeb, and at least one compound selected from a second component (b) group, for example, from (b2), (b3), (b6), (b7), (b8) or (b9). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b1) to component (a) is from 10:1 to 1:1. Included are compositions wherein the weight ratio of component (b1) to component (a) is from 9:1 to 4.5:1. Examples of these compositions include compositions comprising mixtures of component (a) (preferably a compound from Index Table A) with mancozeb and a compound selected from the group consisting of famoxadone, fenamidone, azoxystrobin, kresoxim-methyl, pyraclostrobin, trifloxystrobin, cymoxanil, metalaxyl, benalaxyl, oxadixyl, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, folpet, captan and fosetyl-aluminum.

Also of note are compositions wherein component (b) comprises at least one compound selected from (b2), for example famoxadone, and at least one compound selected from a second component (b) group, for example, from (b1), (b3), (b6), (b7), (b8) or (b9). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b2) to component (a) is from 10:1 to 1:1. Included are compositions wherein the weight ratio of component (b2) to component (a) is from 9:1 to 4.5:1. Examples of these compositions include compositions comprising mixtures of component (a) (preferably a compound from Index Table A) with famoxadone and a compound selected from the group consisting of mancozeb, maneb, propineb, zineb, cymoxanil, metalaxyl, benalaxyl, oxadixyl, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, folpet, captan and fosetyl-aluminum.

Also of note are compositions wherein component (b) comprises the compound of (b3), in other words cymoxanil, and at least one compound selected from a second component (b) group, for example, from (b1), (b2), (b6), (b7), (b8) or (b9). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b3) to component (a) is from 10:1 to 1:1. Included are compositions wherein the weight ratio of component (b3) to component (a) is from 9:1 to 4.5:1. Examples of these compositions include compositions

10

20

25

30

35

comprising mixtures of component (a) (preferably a compound from Index Table A) with cymoxanil and a compound selected from the group consisting of famoxadone, fenamidone, azoxystrobin, kresoxim-methyl, pyraclostrobin, trifloxystrobin, mancozeb, maneb, propineb, zineb, metalaxyl, benalaxyl, oxadixyl, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, folpet, captan and fosetyl-aluminum.

Also of note are compositions wherein component (b) comprises at least one compound selected from (b6), for example metalaxyl, and at least one compound selected from a second component (b) group, for example, from (b1), (b2), (b3), (b7), (b8) or (b9). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b6) to component (a) is from 10:1 to 1:3. Included are compositions wherein the weight ratio of component (b6) to component (a) is from 9:1 to 4.5:1. Examples of these compositions include compositions comprising mixtures of component (a) (preferably a compound from Index Table A) with metalaxyl or oxadixyl and a compound selected from the group consisting of famoxadone, fenamidone, azoxystrobin, kresoxim-methyl, pyraclostrobin, trifloxystrobin, cymoxanil, mancozeb, maneb, propineb, zineb, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, folpet, captan and fosetyl-aluminum.

Also of note are compositions wherein component (b) comprises at least one compound selected from (b7), for example 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone or 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, and at least one compound selected from a second component (b) group, for example, from (b1), (b2), (b3), (b6), (b8) or (b9). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b7) to component (a) is from 1:1 to 1:20. Included are compositions wherein the weight ratio of component (b6) to component (a) is from 1:4.5 to 1:9. Examples of these compositions include compositions comprising mixtures of component (a) (preferably a compound from Index Table A) with 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone or 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one and a compound selected from the group consisting of famoxadone, fenamidone, azoxystrobin, kresoxim-methyl, pyraclostrobin, trifloxystrobin, cymoxanil, mancozeb, maneb, propineb, zineb, metalaxyl, benalaxyl, oxadixyl, folpet, captan and fosetyl-aluminum.

Also of note are compositions wherein component (b) comprises the compound of (b9), in other words fosetyl-aluminum, and at least one compound selected from a second component (b) group, for example, from (b1), (b2), (b3), (b6) or (b7). Of particular note are such compositions wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30 and the weight ratio of component (b9) to component (a) is from 10:1 to

1:1. Included are compositions wherein the weight ratio of component (b9) to component (a) is from 9:1 to 4.5:1. Examples of these compositions include compositions comprising mixtures of component (a) (preferably a compound from Index Table A) with fosetylaluminum and a compound selected from the group consisting of famoxadone, fenamidone, azoxystrobin, kresoxim-methyl, pyraclostrobin, trifloxystrobin, mancozeb, maneb, propineb, zineb, metalaxyl, benalaxyl, oxadixyl, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one, folpet, captan and cymoxanil.

Of note are combinations of compounds of Formula I with fungicides giving an even broader spectrum of agricultural protection including strobilurins such as azoxystrobin, kresoxim-methyl, pyraclostrobin and trifloxystrobin; morpholines such as fenpropidine and fenpropimorph; triazoles such as bromuconazole, cyproconazole, difenoconazole, epoxyconazole, flusilazole, ipconazole, metconazole, propiconazole, tebuconazole and triticonazole; pyrimidinone fungicides, benomyl; carbendazim; chlorothalonil; dimethomorph; folpet; mancozeb; maneb; quinoxyfen; validamycin and vinclozolin.

10

15

20

25

30

35

Preferred 4. Preferred compositions comprise a compound of component (a) mixed with cymoxanil.

Preferred 5. Preferred compositions comprise a compound of component (a) mixed with a compound selected from (b1). More preferred is a composition wherein the compound of (b1) is mancozeb.

Preferred 6. Preferred compositions comprise a compound of component (a) mixed with a compound selected from (b2). More preferred is a composition wherein the compound of (b2) is famoxadone.

Of particular note are combinations of Compound 2 or 3 with azoxystrobin, combinations of Compound 2 or 3 with kresoxim-methyl, combinations of Compound 2 or 3 with pyrclostrobin, combinations of Compound 2 or 3 with trifloxystrobin, combinations of Compound 2 or 3 with carbendazim, combinations of Compound 2 or 3 with chlorothalonil, combinations of Compound 2 or 3 with dimethomorph, combinations of Compound 2 or 3 with folpet, combinations of Compound 2 or 3 with mancozeb, combinations of Compound 2 or 3 with maneb, combinations of Compound 2 or 3 with quinoxyfen, combinations of Compound 2 or 3 with validamycin, combinations of Compound 2 or 3 with vinclozolin. Compound 2 or 3 with fenpropidine, combinations of Compound 2 or 3 with fenpropimorph, combinations of Compound 2 or 3 with bromuconazole, combinations of Compound 2 or 3 with cyproconazole, combinations of Compound 2 or 3 with difenoconazole, combinations of Compound 2 or 3 with epoxyconazole, combinations of Compound 2 or 3 with flusilazole, combinations of Compound 2 or 3 with ipconazole, combinations of Compound 2 or 3 with metconazole, combinations of Compound 2 or 3 with propiconazole, combinations of Compound 2 or 3 with tebuconazole, combinations of Compound 2 or 3 with triticonazole, combinations of Compound 2 or 3 with famoxadone, combinations of Compound 2 or 3 with fenamidone, combinations of Compound 2 or 3 with benomyl, combinations of Compound 2 or 3 with cymoxanil, combinations of Compound 2 or 3 with fosetyl-aluminum, combinations of Compound 2 or 3 with metalaxyl, combinations of Compound 2 or 3 with propineb, combinations of Compound 2 or 3 with zineb, combinations of Compound 2 or 3 with copper sulfate, combinations of Compound 2 or 3 with copper hydroxide, combinations of Compound 2 or 3 with propamocarb, combinations of Compound 2 or 3 with cyazofamid, combinations of Compound 2 or 3 with zoxamid, combinations of Compound 2 or 3 with fluazinam and combinations of Compound 2 or 3 with iprovalicarb. Compound numbers refer to compounds in Index Table A.

## Formulation/Utility

5

10

. 15

20

25

Compositions of this invention will generally be used as a formulation or composition comprising at least one carrier selected from agriculturally suitable liquid diluents, solid diluents and surfactants. The formulation or composition ingredients are selected to be consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Useful formulations include liquids such as solutions (including emulsifiable concentrates), suspensions, emulsions (including microemulsions and/or suspoemulsions) and the like which optionally can be thickened into gels. Useful formulations further include solids such as dusts, powders, granules, pellets, tablets, films, and the like which can be water-dispersible ("wettable") or water-soluble. Active ingredient can be (micro)encapsulated and further formed into a suspension or solid formulation; alternatively the entire formulation of active ingredient can be encapsulated (or "overcoated"). Encapsulation can control or delay release of the active ingredient. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred liters per hectare. High-strength compositions are primarily used as intermediates for further formulation.

The formulations will typically contain effective amounts (e.g. from 0.01-99.99 weight percent) of active ingredients together with diluent and/or surfactant within the following approximate ranges which add up to 100 percent by weight.

WO 03/080576 PCT/US03/08179

36

Wai-ha D---

		Weight Percent	
•	Active Ingredients	Diluent	Surfactant
Water-Dispersible and Water-soluble Granules, Tablets and Powders.	5–90	0–94	1–15
Suspensions, Emulsions, Solutions (including Emulsifiable Concentrates)	5–50	<b>40–95</b>	0-25
Dusts Granules and Pellets	1-25 0.01-99	7099 599.99	0–5 0–15
High Strength Compositions	90–99	0–10	0–2

Typical solid diluents are described in Watkins, et al., Handbook of Insecticide Dust Diluents and Carriers, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents are described in Marsden, Solvents Guide, 2nd Ed., Interscience, New York, 1950. McCutcheon's Detergents and Emulsifiers Annual, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, Encyclopedia of Surface Active Agents, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can contain minor amounts of additives to reduce foam, caking, corrosion, microbiological growth and the like, or thickeners to increase viscosity.

5

10

15

20

25

Surfactants include, for example, polyethoxylated alcohols, polyethoxylated alkylphenols, polyethoxylated sorbitan fatty acid esters, dialkyl sulfosuccinates, alkyl sulfates, alkylbenzene sulfonates, organosilicones, N,N-dialkyltaurates, lignin sulfonates, naphthalene sulfonate formaldehyde condensates, polycarboxylates, and polyoxyethylene/polyoxypropylene block copolymers. Solid diluents include, for example, clays such as bentonite, montmorillonite, attapulgite and kaolin, starch, sugar, silica, talc, diatomaceous earth, urea, calcium carbonate, sodium carbonate and bicarbonate, and sodium sulfate. Liquid diluents include, for example, water, N,N-dimethylformamide, dimethyl sulfoxide, N-alkylpyrrolidone, ethylene glycol, polypropylene glycol, paraffins, alkylbenzenes, alkylnaphthalenes, oils of olive, castor, linseed, tung, sesame, corn, peanut, cotton-seed, soybean, rape-seed and coconut, fatty acid esters, ketones such as cyclohexanone, 2-heptanone, isophorone and 4-hydroxy-4-methyl-2-pentanone, and alcohols such as methanol, cyclohexanol, decanol and tetrahydrofurfuryl alcohol.

Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. Dusts and powders can be prepared by blending and, usually, grinding as in a hammer mill or fluid-energy mill. Suspensions are usually prepared by wet-milling; see, for example, U.S. 3,060,084. Preferred suspension concentrates include those containing, in addition to the active ingredient, from 5 to 20% nonionic surfactant (for example, polyethoxylated fatty alcohols) optionally combined with 50-65% liquid diluents and up to

15

20

5% anionic surfactants. Granules and pellets can be prepared by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", Chemical Engineering, December 4, 1967, pp 147-48, Perry's Chemical Engineer's Handbook, 4th Ed., McGraw-Hill, New York, 1963, pages 8-57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can be prepared as taught in U.S. 4,144,050, U.S. 3,920,442 and DE 3,246,493. Tablets can be prepared as taught in U.S. 5,180,587, U.S. 5,232,701 and U.S. 5,208,030. Films can be prepared as taught in GB 2,095,558 and U.S. 3,299,566.

For further information regarding the art of formulation, see U.S. 3,235,361, Col. 6, 10 line 16 through Col. 7, line 19 and Examples 10-41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138-140, 162-164, 166, 167 and 169-182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1-4; Klingman, Weed Control as a Science, John Wiley and Sons, Inc., New York, 1961, pp 81-96; and Hance et al., Weed Control Handbook, 8th Ed., Blackwell Scientific Publications, Oxford, 1989.

In the following Examples, all percentages are by weight and all formulations are prepared in conventional ways. Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except where otherwise indicated.

Ex	amp	le	Α

	Wettable Powder	
25	Active ingredients	65.0%
	dodecylphenol polyethylene glycol ether	2.0%
	sodium ligninsulfonate	4.0%
	sodium silicoaluminate	6.0%
	montmorillonite (calcined)	23.0%,
30	Example B	
	Granule	
	Active ingredients	10.0%
	attapulgite granules (low volatile matter,	20.070
	0.71/0.30 mm; U.S.S. No. 25-50 sieves)	90.0%.

PCT/US03/08179

35

38

#### Example C

	Extruded Pellet		
	Active ingredients		25.0%
	anhydrous sodium sulfate		10.0%
5	crude calcium ligninsulfonate		5.0%
	sodium alkylnaphthalenesulfor	ıate	1.0%
	calcium/magnesium bentonite		59.0%.
		Example D	
	Emulsifiable Concentrate		
10	Active ingredients		20.0%
	blend of oil soluble sulfonates		
	and polyoxyethylene ethers		10.0%
	isophorone		70.0%.
		Example E	
15	Suspension Concentrate		
	Active ingredients		20.0%
	polyethoxylated fatty alcohol	nonionic surfactant	15.0%
	ester derivative of montan wax		3.0%
	calcium lignosulfonate	anionic surfactant	2.0%
20	polyethoxylated/polypropoxyla	ated	
	polyglycol block copolymer	surfactant	1.0%
	propylene glycol	diluent	6.4%
	poly(dimethylsiloxane)	antifoam agent	0.6%
	antimicrobial agent		0.1%
25	water	diluent	51.9%

The formulation ingredients are mixed together as a syrup, the active ingredients are added and the mixture is homogenized in a blender. The resulting slurry is then wet-milled to form a suspension concentrate.

Compositions of this invention can also be mixed with one or more other insecticides, nematocides, bactericides, acaricides, growth regulators, chemosterilants, semiochemicals, repellents, attractants, pheromones, feeding stimulants or other biologically active compounds to form a multi-component pesticide giving an even broader spectrum of agricultural protection. Examples of such agricultural protectants with which compositions of this invention can be formulated are: insecticides such as abamectin, acephate, azinphos-methyl, bifenthrin, buprofezin, carbofuran, chlorfenapyr, chlorpyrifos, chlorpyrifos-methyl, cyfluthrin, beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, deltamethrin, diafenthiuron, diazinon, diflubenzuron, dimethoate, esfenvalerate, fenoxycarb,

fenpropathrin, fenvalerate, fipronil, flucythrinate, tau-fluvalinate, fonophos, imidacloprid, isofenphos, malathion, metaldehyde, methamidophos, methidathion, methomyl, methoprene, methoxychlor, methyl 7-chloro-2,5-dihydro-2-[[N-(methoxycarbonyl)-N-[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)carboxylate (indoxacarb), monocrotophos, oxamyl, parathion, parathion-methyl, permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, rotenone, sulprofos, tebufenozide, tefluthrin, terbufos, tetrachlorvinphos, thiodicarb, tralomethrin, trichlorfon and triflumuron; bactericides such as streptomycin; acaricides such as amitraz, chinomethionat, chlorobenzilate, cyhexatin, dicofol, dienochlor, etoxazole, fenazaquin, fenbutatin oxide, fenpropathrin, fenpyroximate, hexythiazox, propargite, pyridaben and tebufenpyrad; nematocides such as aldoxycarb and fenamiphos; and biological agents such as Bacillus thuringiensis, Bacillus thuringiensis delta endotoxin, baculovirus, and entomopathogenic bacteria, virus and fungi. The weight ratios of these various mixing partners to compounds of Formula I of this invention typically are between 100:1 and 1:100, preferably between 30:1 and 1:30, more preferably between 10:1 and 1:10 and most preferably between 4:1 and 1:4.

5

10

15

20

25

30

35

The compositions of this invention are useful as plant disease control agents. The present invention therefore further comprises a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof to be protected, or to the plant seed or seedling to be protected, an effective amount of a composition of the invention. The compositions of this invention provide control of diseases caused by a broad spectrum of fungal plant pathogens in the Basidiomycete, Ascomycete, Oomycete and Deuteromycete classes. They are effective in controlling a broad spectrum of plant diseases, particularly foliar pathogens of ornamental, vegetable, field, cereal, and fruit crops. These pathogens include Plasmopara viticola, Phytophthora infestans, Peronospora tabacina, Pseudoperonospora cubensis, Pythium aphanidermatum, Alternaria brassicae, Septoria nodorum, Septoria tritici, Cercosporidium personatum, Cercospora arachidicola. Pseudocercosporella herpotrichoides, Cercospora beticola, Botrytis cinerea, Monilinia fructicola, Pyricularia oryzae, Podosphaera leucotricha, Venturia inaequalis, Erysiphe graminis, Uncinula necatur, Puccinia recondita, Puccinia graminis, Hemileia vastatrix, Puccinia striiformis, Puccinia arachidis, Rhizoctonia solani, Sphaerotheca fuliginea, Fusarium oxysporum, Verticillium dahliae, Pythium aphanidermatum, Phytophthora megasperma, Sclerotinia sclerotiorum, Sclerotium rolfsii, Erysiphe polygoni, Pyrenophora teres, Gaeumannomyces graminis, Rynchosporium secalis, Fusarium roseum, Bremia lactucae and other generea and species closely related to these pathogens. The compositions of the invention are especially effective in controlling Plasmopara viticola on grapes and Phytophthora infestans on potatoes and tomatoes.

10

15

Plant disease control is ordinarily accomplished by applying an effective amount of a compound of this invention either pre- or post-infection, to the portion of the plant to be protected such as the roots, stems, foliage, fruit, seeds, tubers or bulbs, or to the media (soil or sand) in which the plants to be protected are growing. The compounds can also be applied to the seed to protect the seed and seedling.

Rates of application for these compounds can be influenced by many factors of the environment and should be determined under actual use conditions. Foliage can normally be protected when treated at a rate of from less than 1 g/ha to 5,000 g/ha of active ingredient. Seed and seedlings can normally be protected when seed is treated at a rate of from 0.1 to 10 g per kilogram of seed.

The following TESTS demonstrate the control efficacy of compositions of this invention on specific pathogens. The pathogen control protection afforded by the compositions is not limited, however, to these species. See Index Tables A-B for compound descriptions for compounds used in the TESTS. The following abbreviations are used in the Index Tables that follow: Me is methyl and OMe is methoxy. The abbreviation "Ex." stands for "Example" and is followed by a number indicating in which example the compound is prepared.

### **INDEX TABLE A**

$$(\mathbb{R}^5)_{\text{int}} \xrightarrow{6} \mathbb{R}^7 \mathbb{R}^2 \xrightarrow{N} \mathbb{R}^5 \mathbb{R}^6 \mathbb{R}^6)_{\text{in}}$$

Compound Number	Rl	R <sup>2</sup>	(R <sup>5</sup> )m	(R <sup>6</sup> ) <sub>n</sub>	m.p. (°C.)
1 (Ex. 2)	н	СН3	3,5-di-Cl	2,4-di-Cl	•
racemic					
2 (Ex. 1)	Н	CH <sub>3</sub>	3-Cl-5-Br	2,4-di-Cl	•
racemic					
3	H	CH <sub>3</sub>	3-C1-5-I	2,4-di-Cl	•
4	H	н	3,5-Cl <sub>2</sub>	2,4-di-Cl	•
5	H	CH <sub>3</sub>	3-C1-5-F	2,4-di-Cl	•
6	Н	н	3-Br-5-Cl	2,4-di-Cl	•
. 7	H	CH <sub>3</sub>	3,5-di-Br	2,4-di-Cl	•
8	Н	Н	3-I-5-Cl	2,4-di-Cl	• •
9	Н	н	3-Cl-5-Br	2,4-di-Cl	•
10	Н	CH <sub>3</sub>	3,5-di-Me	2,4-di-Cl	•

Compound Number	R <sup>1</sup>	R <sup>2</sup>	(R <sup>5</sup> ) <sub>m</sub>	(R <sup>6</sup> ) <sub>n</sub>	m.p. (°C.)
11	Н	CH <sub>3</sub>	3-Cl-5-OCF <sub>2</sub> H	2,4-di-Cl	•
12	Н	Н	3-Cl-5-I	2,4-di-Cl	•
13	Н	CH <sub>3</sub>	3-Cl-5-Br	2,4-di-Cl-6-Me	•
14	Н	н	3-C1-5-Br	2,4-di-Cl-6-Me	•
15	Н	CH <sub>3</sub>	3-Cl-5-I	2,4-di-Cl-6-Me	8
16	Н	Н	3-C1-5-I	2,4-di-Cl-6-Me	•
17	H	Н	3,5-di-Br	2,4-di-Cl	•
18	Н	Н	3,5-di-Br	2,4-di-Cl-6-Me	•
19	H	Н	3,5-di-Cl	2,4-di-Cl-6-Me	•
20	Н	CH <sub>3</sub>	3,5-di-Cl	2,4-di-Cl-6-Me	•
21	Н	CH <sub>3</sub>	3-Cl-5-OMe	2,4-di-Cl-6-Me	•
22	Н	CH <sub>3</sub>	3-C1-5-OMe	2,4-di-Cl	•
23	Н	CH <sub>3</sub>	3-I-5-Br	2,4-di-C1	•
24	H	H	3-Cl-5-Br	2-C1-4-I	•
25	H	CH <sub>3</sub>	3-C1-5-Br	2-C1-4-I	<b>+</b>
26	H	H	3,5-Cl <sub>2</sub>	2-C1-4-I	•
27	н	CH <sub>3</sub>	3,5-Cl <sub>2</sub>	2-C1-4-I	•
28	H	CH <sub>3</sub>	3-C1-5-Br	2-Cl-4-Br	*
29	H	CH <sub>3</sub>	3-C1-5-Br	2-Br-4-Me	•
30	H	CH <sub>3</sub>	3,5-di-Br	2-Cl-4-I	•
31	H	CH <sub>3</sub>	3,5-di-Br	2-F-4-I	•
32	H	CH <sub>3</sub>	3,5-di-Br	2,4-di-Cl-6-Me	•
33	H	CH <sub>3</sub>	3-C1-5-Br	2-F-4-I	•
34	H	CH <sub>3</sub>	3-Br-5-Cl	2,4-di-Cl	•
35	H	H	3-Br-5-I	2,4-di-Cl	•
36	H	CH <sub>3</sub>	3-Br-5-I	2,4-di-Cl	•
37	H	CH <sub>3</sub>	3-Cl-5-Br	2-F-4-Br	•
38	Н	CH <sub>3</sub>	3,5-di-Cl	2-F-4-Br	•
39	H	CH <sub>3</sub>	3,5-di-Br	2-F-4-Br	*
40	Н	H	3-Br-5-Cl	2,4-di-Cl-6-Me	•
41	H	CH <sub>3</sub>	3-Br-5-Cl	2,4-di-Cl-6-Me	•
42	Н	H	3-Br-5-I	2,4-di-Cl-6-Me	•
43	Н	CH <sub>3</sub>	3-Br-5-I	2,4-di-Cl-6-Me	•

<sup>\*</sup>See Index Table B for <sup>1</sup>H NMR data.

## INDEX TABLE B

1		1
2 8 1.59(d,3H, Jis 6.6 Hz), 5.75(m,1H), 7.3(bs,1H), 7.34(d,1H, Jis 5.2 Hz), 7.91(d,1H, Jis 1.9 Hz), 8.33(d,1H, Jis 1.5 4 Hz), 8.49(d,1H, Jis 1.9 Hz), 8.15(d, 1 H, Jis 1.9) 3 8 1.58 (d, 3H, Jis 6.9 Hz), 5.7 (m, 1 H), 7.35(m, 2 H), 8.70(d, 1 H, Jis 1.9), 8.35(m, 1 H), 8.61(d,1 H, Jis 1.9) 4 8 4.87 (d, 2 H, Jis 4.3 Hz), 7.36 (d,1 H, Jis 5.5 Hz), 7.79 (d,1 H, Jis 2.2 Hz), 8.35 (d,1 H, Jis 5.2), 8.41(d,1 H, Jis 2.1 Hz) 5 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H), 8.35 (d, 1 H, Jis 5.5 Hz), 8.46 (d, 2 H, Jis 4.1 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.5 Hz), 8.74 (d, 1 H, Jis 5.5 Hz), 8.46 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.2 Hz), 8.75 (d, 1 H, Jis 2.0 Hz) 7 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 2.0 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 5.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.37 (d, 1 H, Jis 7.4 Hz), 8.38 (d, 1 H, Jis 7.3 Hz	Cmpd No.	<sup>1</sup> H NMR Data (300mHz; CDCl <sub>3</sub> solution unless indicated otherwise) <sup>a</sup>
2 8 1.59(d,3H, Jis 6.6 Hz), 5.75(m,1H), 7.3(bs,1H), 7.34(d,1H, Jis 5.2 Hz), 7.91(d,1H, Jis 1.9 Hz), 8.33(d,1H, Jis 1.5 4 Hz), 8.49(d,1H, Jis 1.9 Hz), 8.15(d, 1 H, Jis 1.9) 3 8 1.58 (d, 3H, Jis 6.9 Hz), 5.7 (m, 1 H), 7.35(m, 2 H), 8.70(d, 1 H, Jis 1.9), 8.35(m, 1 H), 8.61(d,1 H, Jis 1.9) 4 8 4.87 (d, 2 H, Jis 4.3 Hz), 7.36 (d,1 H, Jis 5.5 Hz), 7.79 (d,1 H, Jis 2.2 Hz), 8.35 (d,1 H, Jis 5.2), 8.41(d,1 H, Jis 2.1 Hz) 5 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H), 8.35 (d, 1 H, Jis 5.5 Hz), 8.46 (d, 2 H, Jis 4.1 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.5 Hz), 8.74 (d, 1 H, Jis 5.5 Hz), 8.46 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.2 Hz), 8.75 (d, 1 H, Jis 2.0 Hz) 7 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 2.0 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 5.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.35 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.36 (d, 1 H, Jis 7.3 Hz), 8.37 (d, 1 H, Jis 7.4 Hz), 8.38 (d, 1 H, Jis 7.3 Hz	1	8.1.58(d.3H. Lis 6.6Hz), 5.7-5.8(m.1H), 7.4(m.2H), 7.77(m.1H), 8.35(m.1H), 8.40(m,1H).
8.33(d, 1H, Jis 5.4 Hz), 8.49(d, 1H, Jis 1.9 Hz). 3 8 1.58 (d, 3H, Jis 6.9 Hz), 5.7 (m, 1 H), 7.35 (m, 2 H), 8.70 (d, 1 H, Jis 1.9), 8.35 (m, 1 H), 8.61 (d, 1 H, Jis 1.9) 4 8 4.87 (d, 2H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.79 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.2), 8.41 (d, 1 H, Jis 1.2 Hz) 5 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H). 6 8 4.84 (d, 2 H, Jis 4.1 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz), 6 1.58 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.32 (d, 1 H, Jis 5.2 Hz), 8.52 (d, 1 H, Jis 2.0 Hz) 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.32 (d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 2.2 Hz) 8 4.78 (d, 2 H, Jis 4.2 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.70 (d, 1 H, Jis 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.30 (d, 1 H, Jis 5.3 Hz), 8.30 (d, 1 H, Jis 5.3 Hz), 8.30 (m, 2 H), 7.7 (bd, 1 H, Jis 1.7 Hz), 8.33 (m 2 H) 10 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m H), 6.57 (s, 1 H, Jis 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, Jis 1.7 Hz), 8.33 (m 2 H) 12 8 4.84 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, Jis 1.5 Hz) 13 6 1.57 (d, 3 H, Jis 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, Jis 2.2 Hz), 8.48 (d, 1 H, Jis 1.5 Hz) 14 5 2.58 (s, 1 H), 4.83 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz), 8.49 (d, 1 H, Jis 1.8 Hz) 15 2.58 (s, 1 H), 4.83 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.09 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 1.7 Hz), 8.61 (d, 1 H, Jis 1.7 Hz) 16 2.56 (s, 3 H), 4.82 (d, 2 H, Jis 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.09 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 1.5 Hz),		8 1 59(d 3H J is 6 6 Hz) 5 75(m JH) 7.3(hs JH), 7.34(d JH, J is 5.2 Hz), 7.91(d JH, J is 1.9 Hz),
8 1.58 (d, 3H, Jis 6.9 Hz), 5.7 (m, 1 H), 7.35(m, 2 H), 8.70(d, 1 H, J is 1.9), 8.35(m, 1 H), 8.61(d, 1 H, Jis 1.9) 8 4.87 (d, 2H, Jis 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.79 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 5.2), 8.41(d, 1 H, J is 2.1 Hz) 5 8 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H), 6.48 (d, 2 H, J is 4.1 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.54 (d, 1 H, J is 5.5 Hz), 8.74 (m, 2 H), 8.08 (d, 1 H, J is 2.1 Hz), 8.32 (d, 1 H, J is 5.2 Hz), 8.52 (d, 1 H, J is 2.0 Hz) 8 8 4.78 (d, 2 H, J is 4.2 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, J is 2.1 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.45 (d, 1 H, J is 2.2 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.45 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 7.1 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 7.1 Hz), 8.35 (m, 2 H), 8.56 (m, 1 H), 8.57 (m, 1 H), 8.57 (m, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, J is 5.3 Hz), 8.57 (m, 1 H), 7.18 (h, 1 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.8 Hz) 15 8 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz) 16 1.50 (d, 1 H, J is 1.8 Hz) 17 8 1.50 (d, 1 H, J is 1.7 Hz), 8.51 (d, 1 H, J is 2.0 Hz), 8.56 (d, 1 H, J is 1.7 Hz), 8.51 (d, 1 H, J is 1.8 Hz) 18 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.3 (bd, 1 H, J is 2.1 Hz), 8.60 (d, 1 H, J is 1.7 Hz), 8.51 (d, 1 H, J is 1.8 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.30 (d, 1 H, J is 2.0 Hz), 8.50 (d, 1 H, J is 1.7 Hz), 8.51 (d, 1 H, J is 2.0 Hz), 8.50 (d, 1	-	8 33/d 1H Jis 5 4 Hz), 8 49/d 1H, Jis 1.9 Hz).
H, Jis 1.9) 4 8 4.87 (d, 2H, Jis 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.79 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 2.1 Hz) 8 4.1(d, 1 H, J is 2.1 Hz) 5 8 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H). 6 8 4.84 (d, 2 H, J is 4.1 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, J is 2.0 Hz) 7 8 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, J is 2.1 Hz), 8.32 (d, 1 H, J is 5.5 Hz), 8.52 (d, 1 H, J is 2.0 Hz) 8 6 4.78 (d, 2 H, J is 4.2 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, J is 2.1 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.45 (d, 1 H, J is 2.2 Hz) 9 6 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 2.1 Hz) 10 6 1.53 (d, 3 H, J is 5.6 Hz), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, J is 5.3 Hz), 8.35 (d, 1 H, J is 7.4 Hz), 8.35 (m, 2 H), 8.16 (m, 1 H), 8.31 (d, 1 H, J is 5.3 Hz), 8.35 (m, 2 H), 8.40 (d, 1 H, J is 1.7 Hz), 8.33 (m, 2 H) 11 6 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m I H), 6.57 (t, 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.33 (m, 2 H) 12 6 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz) 13 6 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.49 (d, 1 H, J is 1.8 Hz) 14 5 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 8.2 Hz), 8.49 (d, 1 H, J is 1.8 Hz) 15 6 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.26 (d, 1 H, J is 1.8 Hz) 16 5 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 2.0 Hz), 8.26 (d, 1 H, J is 1.8 Hz) 17 6 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.25 (d, 3	3	8.1.58 (d. 3H Jis 6.9 Hz) 5.7 (m.1 H), 7.35(m. 2 H), 8.70(d. 1 HJ is 1.9), 8.35(m. 1 H), 8.61(d,1
4 8 4.87 (d, 2H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.79 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.2), 8.41(d, 1 H, Jis 2.1 Hz) 5 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H). 6 8 4.84 (d, 2 H, Jis 4.1 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.5 Hz), 8.44 (d, 1 H, Jis 2.0 Hz) 7 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.32 (d, 1 H, Jis 5.2 Hz), 8.52 (d, 1 H, Jis 2.0 Hz) 8 7 4.78 (d, 2 H, Jis 4.2 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 2.2 Hz) 9 8 6.48 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 7.1 Hz), 8.31 (d, 1 H, Jis 7.1 Hz), 8.31 (d, 1 H, Jis 7.1 Hz), 8.31 (d, 1 H, Jis 7.3 Hz), 8.50 (d, 1 H, Jis 1.6 Hz), 8.		
8.41(d, 1 H, Jis 2.1 Hz)  5	4	8 4 87 (d. 2H. J is 4.3 Hz), 7.36 (d.1 H. J is 5.5 Hz), 7.79 (d.1 H. J is 2.2 Hz), 8.35 (d.1 H. J is 5.2),
5 8 1.58 (d, 3 H, Jis 6.6 Hz.), 5.75 (m, 1 H), 7.3-7.4 (m, 2 H), 7.55 (m, 1 H), 8.3 (m, 2 H). 6 8 4.84 (d, 2 H, Jis 4.1 Hz.), 7.36 (d, 1 H, Jis 5.5 Hz.), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz.), 8.35 (d, 1 H, Jis 5.5 Hz.), 8.44 (d, 1 H, Jis 2.0 Hz.) 7 8 1.58 (d, 3 H, Jis 6.6 Hz.), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz.), 8.32 (d, 1 H, Jis 5.2 Hz.), 8.52 (d, 1 H, Jis 2.0 Hz.) 8 8 4.78 (d, 2 H, Jis 4.2 Hz.), 7.36 (d, 1 H, Jis 5.3 Hz.), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz.), 8.35 (d, 1 H, Jis 5.3 Hz.), 8.45 (d, 1 H, Jis 2.1 Hz.) 9 8 4.84 (d, 2 H, Jis 4.3 Hz.), 7.36 (d, 1 H, Jis 5.3 Hz.), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 5.2 Hz.), 8.55 (d, 1 H, Jis 5.3 Hz.), 8.50 (d, 1 H, Jis 5.3 Hz.), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz.), 8.35 (d, 1 H, Jis 5.3 Hz.), 8.50 (d, 1 H, Jis 5.3 Hz.), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz.) 10 8 1.53 (d, 3 H, Jis 5.6 Hz.), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz.) 11 8 1.58 (d, 3 H, Jis 6.6 Hz.), 5.75 (m 1 H), 6.57 (t, 1 H, Jis 71.8 Hz.), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, Jis 1.7 Hz.), 8.33 (m. 2 H) 12 8 4.84 (d, 2 H, Jis 4.3 Hz.), 7.36 (d, 1 H, Jis 5.5 Hz.), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz.), 8.35 (m. 2 H), 8.48 (d, 2 H, Jis 1.5 Hz.) 13 8 1.57 (d, 3 H, Jis 6.5 Hz.), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, Jis 1.8 Hz.) 14 2 5 2.58 (s, 3 H), 4.83 (d, 2 H, Jis 4.3 Hz.), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, Jis 2.4 Hz.), 8.05 (d, 1 H, Jis 1.8 Hz.) 15 8 1.57 (d, 3 H, Jis 7.2 Hz.), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, Jis 8.2 Hz.), 8.06 (d, 1 H, Jis 1.6 Hz.) 16 8 2.266 (s, 3 H), 4.83 (d, 2 H, Jis 4.1 Hz.), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.9 Hz.), 8.02 (d, 1 H, Jis 1.6 Hz.) 17 8 4.82 (d, 2 H, Jis 4.3 Hz.), 7.36 (d, 1 H, Jis 2.0 Hz.) 18 5 5 (d, 3 H, Jis 5.6 Hz.), 8.53 (d, 1 H, Jis 2.0 Hz.) 18 5 6 1.57 (d, 3 H, Jis 5.4 Hz.), 8.53 (d, 1 H, Jis 2.0 Hz.) 19 6 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.1 Hz.), 7.71 (s, 1	-	
6 8 4,84 (d, 2 H, Jis 4,1 Hz), 7.36 (d, 1 H, Jis 5,5 Hz), 7.5 (bs, 1 H), 7.95 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5,5 Hz), 8.44 (d, 1 H, Jis 5,2 Hz), 8.47 (d, 1 H, Jis 2.0 Hz)  7 8 1.58 (d, 3 H, Jis 6,6 Hz), 5.7 (m, 1 H), 7.3-7.4 (m, 2 H), 8.08 (d, 1 H, Jis 2.1 Hz), 8.32 (d, 1 H, Jis 5.2 Hz), 8.52 (d, 1 H, Jis 2.0 Hz)  8 8 4.78 (d, 2 H, Jis 4.2 Hz), 7.36 (d, 1 H, Jis 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, Jis 2.1 Hz), 8.35 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 5.3 Hz), 8.45 (d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, Jis 2.2 Hz), 8.35 (d, 1 H, Jis 5.5 Hz), 8.50 (d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 5.5 Hz), 7.4 (bs, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.13 (d, 1 H, Jis 5.5 Hz), 7.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.60 (d, 1 H, Jis 1.7 Hz), 8.33 (m 2 H)  12 8 4.84 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, Jis 1.5 Hz)  13 6 1.57 (d, 3 H, Jis 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, Jis 2.0 Hz), 8.48 (d, 1 H, Jis 1.8 Hz)  14 5 2.58 (s, 3 H), 4.83 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.9 (d, 1 H, Jis 2.1 Hz), 8.64 (d, 1 H, Jis 1.7 Hz), 8.61 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 1.6 Hz), 8.35 (d, 1 H, Jis 1.6 Hz), 8.35 (d, 1 H, Jis	5	8 1 58 (d. 3 H. J is 6.6 Hz), 5.75 (m. 1 H), 7.3-7.4 (m. 2 H), 7.55 (m. 1 H), 8.3 (m. 2 H).
(d, 1 H, J is 5.5 Hz), 8.44 (d, 1 H, J is 2.0 Hz)  8		8 4 84 (d 2 H J is 4 1 Hz) 7.36 (d 1 H. J is 5.5 Hz), 7.5 (bs. 1 H), 7.95 (d, 1 H, J is 2.0 Hz), 8.35
7	_	
J is 5.2 Hz), 8.52 (d, 1 H, J is 2.0 Hz)  8	7	81 58 (d 3 H J is 66 Hz) 5.7 (m. 1 H), 7.3-7.4 (m. 2 H), 8.08 (d. 1 H, J is 2.1 Hz), 8.32 (d. 1 H,
8 8 4.78 (d, 2 H, J is 4.2 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.5 (bs, 1 H), 8.18 (d, 1 H, J is 2.1 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.45 (d, 1 H, J is 2.2 Hz) 9 6 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 3.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 5.3 Hz), 10 8 1.53 (d, 3 H, J is 5.6 Hz), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, J is 5.3 Hz) 11 8 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m 1 H), 6.57 (t, 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.33 (m 2 H) 12 8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz) 13 8 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.49 (d, 1 H, J is 1.8 Hz) 14 5 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz), 8.62 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz), 8.62 (d, 1 H, J is 1.6 Hz) 15 6 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.5 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.52 (d, 1 H, J is 5.5 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.35 (d, 1 H, J is 5.0 Hz), 8		
(d, 1 H, J is 5.3 Hz), 8.45 (d, 1 H, J is 2.2 Hz)  8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, J is 2.2 Hz), 8.35 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 5.1 Hz)  10 8 1.53 (d, 3 H, J is 5.6 Hz), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz)  11 8 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m 1 H), 6.57 (t, 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.33 (m 2 H)  12 8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz)  13 8 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  14 8 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  15 8 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  16 8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  17 8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 1.9 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  18 6 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  18 6 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  20 8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz)  21 8 1.56 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 2.4 Hz), 7.45 (bd, 1 H), 1 is 4.3 Hz), 7.46 (bd, 1 H), 1 is 5.3 Hz), 7.40 (bd, 1	8	8 4 78 (d. 2 H. Jig 42 Hz), 7.36 (d. 1 H. Jig 5.3 Hz), 7.5 (bg. 1 H), 8.18 (d. 1 H, Jig 2.1 Hz), 8.35
9	•	(d. 1 H. J is 5.3 Hz). 8.45 (d. 1 H. J is 2.2 Hz)
(d, 1 H, Jis 5.3 Hz), 8.50 (d, 1 H, Jis 2.1 Hz)  8 1.53 (d, 3 H, Jis 5.6 Hz), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz)  11 8 1.58 (d, 3 H, Jis 6.6 Hz), 5.75 (m 1 H), 6.57 (t, 1 H, Jis 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, Jis 1.7 Hz), 8.33 (m 2 H)  12 8 4.84 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, Jis 1.5 Hz)  13 8 1.57 (d, 3 H, Jis 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, Jis 2.0 Hz), 8.48 (d, 1 H, Jis 1.8 Hz)  14 5 2.58 (s, 3 H), 4.83 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, Jis 8.2 Hz), 8.49 (d, 1 H, Jis 1.8 Hz)  15 6 1.57 (d, 3 H, Jis 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, Jis 8.2 Hz), 8.06 (d, 1 H, Jis 1.7 Hz), 8.61 (d, 1 H, Jis 1.7 Hz)  15 6 2.56 (s, 3 H), 4.82 (d, 2 H, Jis 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.3 (bd, 1 H, Jis 8.2 Hz), 8.05 (d, 1 H, Jis 1.7 Hz), 8.61 (d, 1 H, Jis 2.5 Hz), 7.47 (bs, 1 H), 8.07 (d, 1 H, Jis 1.9 Hz), 8.62 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 2.0 Hz), 8.35 (d, 1 H, Jis 1.9 Hz)  18 6 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 1.9 Hz)  19 6 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 8.09 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H, Jis 2.1 Hz), 8.40 (d, 1 H, Jis 2.0 Hz)  20 6 1.57 (d, 3 H, Jis 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, Jis 2.0 Hz)  21 6 1.56 (d, 3 H, Jis 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, Jis 5.5 Hz), 7.35 (b, 1 H), 8.24 (d, 1 H, Jis 2.0 Hz), 8.30 (d, 1 H, Jis 2.0 Hz), 8.30 (d, 1 H, Jis 2.0 Hz), 8.54 (d, 1 H, Jis 5.5 Hz), 7.55 (d, 1 H, Jis 5.5 Hz), 7.99 (d, 1 H, Jis 1.9 Hz), 8.04 (d, 1 H, Jis 5.4 Hz), 8.50 (d, 1 H, Jis 1.7	9	8 4.84 (d. 2 H. J is 4.3 Hz), 7.36 (d. 1 H. J is 5.3 Hz), 7.4 (bs, 1 H), 7.93 (d, 1 H, J is 2.2 Hz), 8.35
8 1,53 (d, 3 H, J is 5.6 Hz), 2.29 (s, 3 H), 2.39 (s, 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1 H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz)  11 8 1,58 (d, 3 H, J is 6.6 Hz), 5.75 (m 1 H), 6.57 (t, 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.33 (m 2 H)  12 6 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz)  13 6 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  14 5 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  15 6 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  16 5 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  17 6 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 2.0 Hz)  18 6 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  19 5 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  20 6 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz)  21 5 1.56 (d, 3 H, J is 6.6 Hz), 3.77 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz)  22 6 1.57 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 7.4 Hz), 7.44 (b, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 6 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.5 Hz), 7.92 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.46 (bd, 1 H, J is 5.3 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.00 (d, 1 H, J is	-	(d. 1 H. Jis 5.3 Hz.). 8.50 (d. 1 H. Jis 2.1 Hz)
H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz)  11	10	8 1.53 (d. 3 H. J is 5.6 Hz), 2.29 (s. 3 H), 2.39 (s. 3 H), 5.45 (m, 1 H), 7.32 (m, 2 H), 7.7 (bd, 1
8 1.58 (d, 3 H, J is 6.6 Hz), 5.75 (m 1 H), 6.57 (t, 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1 H, J is 1.7 Hz), 8.33 (m 2 H)  8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz)  13 6 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 1.2 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  14 5 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.7 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  15 6 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.05 (d, 1 H, J is 1.6 Hz)  16 8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  17 6 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 5.4 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  18 6 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  20 6 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  21 6 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.6 Hz)  22 6 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.35 (b, 1 H), 7.35 (b, 1 H), 1 is 1.0 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H, J is 5.3 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.91 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2		H), 8.16 (m, 1 H), 8.31 (d, 1 H, Jis 5.3 Hz)
H, Jis 1.7 Hz), 8.33 (m 2 H)  8 4.84 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, Jis 1.5 Hz)  8 1.57 (d, 3 H, Jis 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, Jis 2.0 Hz), 8.48 (d, 1 H, Jis 1.8 Hz)  4 2.58 (s, 3 H), 4.83 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, Jis 2.1 Hz), 8.49 (d, 1 H, Jis 1.8 Hz)  5 1.57 (d, 3 H, Jis 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, Jis 8.2 Hz), 8.06 (d, 1 H, Jis 1.7 Hz)  6 2.56 (s, 3 H), 4.82 (d, 2 H, Jis 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.9 Hz), 8.62 (d, 1 H, Jis 1.6 Hz)  7 4.82 (d, 2 H, Jis 4.3 Hz), 7.36 (d, 1 H, Jis 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, Jis 2.0 Hz), 8.53 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 5.5 Hz), 8.53 (d, 1 H, Jis 2.0 Hz), 8.53 (d, 1 H, Jis 1.9 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 2.0 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, Jis 2.1 Hz), 8.53 (d, 1 H, Jis 2.0 Hz)  8 1.57 (d, 3 H, Jis 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, Jis 2.0 Hz)  8 1.57 (d, 3 H, Jis 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, Jis 2.6 Hz), 8.30 (d, 1 H, Jis 2.6 Hz), 8.31 (d, 1 H, Jis 2.6 Hz), 8.32 (d, 1 H, Jis 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, Jis 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, Jis 2.6 Hz), 8.36 (d, 1 H, Jis 5.5 Hz), 8.36 (d, 1 H, Jis 5.4 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, Jis 5.3 Hz), 7.91 (d, 1 H, Jis 5.4 Hz), 7.46 (bd, 1 H), 8.12 (d, 1 H, Jis 5.6 Hz), 5.6 (d, 1 H, Jis 5.7 Hz), 8.50 (d, 1 H, Jis 5.9 Hz), 7.92 (d, 1 H, Jis 5.9 Hz), 7.91 (d, 1 H, Jis 5.9 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, Jis 5.2 Hz), 7.92 (d, 1 H, Jis 5.3 Hz), 8.00 (d, 1 H, Jis 5.3 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, Jis 5.2 Hz), 7.99 (d, 1 H, Jis 2.1 Hz), 8.00 (d, 1 H, Jis 5.3	11	8 1.58 (d. 3 H. J is 6.6 Hz), 5.75 (m 1 H), 6.57 (t. 1 H, J is 71.8 Hz), 7.3-7.4 (m, 2 H), 7.60 (d, 1
8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35 (m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz)  13 6 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  14 6 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.8 Hz)  15 15 7 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  16 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  17 6 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  18 6 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  19 6 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  20 6 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz)  21 8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.40 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.5 Hz), 7.35 (bd, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.5 Hz), 8.33 (d, 1 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 6.6 Hz), 8.37 (d, 1 H, J is 5.2 Hz), 7.35 (bs, 1 H), 7.35 (bd, 1 H, J is 5.2 Hz), 7.91 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.3 (bd, 1 H, J is 5.2 Hz), 7.91 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 5		
(m, 2 H), 8.64 (d, 1 H, J is 1.5 Hz)  8 1.57 (d, 3 H, J is 6.5 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H), 7.9 (d, 1 H, J is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  8 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.8 Hz)  8 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  8 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  8 1.56 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.40 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  2 1 5 1.58 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H, J is 5.4 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.2 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 2.0 Hz), 8.30 (d, 1 H, J is 5.4 Hz), 7.45 (d, 1 H, J is 5.4 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.0 (s, 1 H), 8.0 (s, 1 H), 8.0 (s, 1 H),	12	8 4.84 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.7 Hz), 8.35
13		
is 2.0 Hz), 8.48 (d, 1 H, J is 1.8 Hz)  8 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz),  8.49 (d, 1 H, J is 1.8 Hz)  15 8 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz),  8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz),  8.62 (d, 1 H, J is 1.6 Hz)  17 8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz),  8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz),  8.53 (d, 1 H, J is 1.9 Hz)  19 8 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz),  8.40 (d, 1 H, J is 2.0 Hz)  20 8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H,  J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  21 5 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H),  7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 5 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.2 Hz)  23 6 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 2.1 Hz),  8 1.59 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz),  8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz),  8 1.60 (d, 3 H, J is 6.8 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz),  8 1.60 (d, 3 H, J is 6.8 Hz), 5.7 (m, 1 H), 7.7 (m, 1 H), 7.8 (m, 1 H), 8.01 (s, 1 H),  8 1.59 (d, 3 H, J is 6	13	
8 2.58 (s, 3 H), 4.83 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 7.92 (d, 1 H, J is 2.1 Hz), 8.49 (d, 1 H, J is 1.8 Hz)  15 8 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz), 8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  16 8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  17 8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  18 8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  19 8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  20 8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  21 8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.46 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 6 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 8.30 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 8.30 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.3 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  25 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.79 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz)  26 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz		
8.49 (d, İ H, Jis 1.8 Hz)  8 1.57 (d, 3 H, Jis 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, Jis 8.2 Hz), 8.06 (d, I H, Jis 1.7 Hz), 8.61 (d, I H, Jis 1.7 Hz)  8 2.56 (s, 3 H), 4.82 (d, 2 H, Jis 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, Jis 1.9 Hz), 8.62 (d, I H, Jis 1.6 Hz)  8 4.82 (d, 2 H, Jis 4.3 Hz), 7.36 (d, I H, Jis 5.5 Hz), 7.47 (bs, I H), 8.09 (d, I H, Jis 2.0 Hz), 8.35 (d, I H, Jis 5.5 Hz), 8.53 (d, I H, Jis 2.0 Hz), 8.53 (d, I H, Jis 1.9 Hz)  8 5 2.56 (s, 3 H), 4.80 (d, 2 H, Jis 4.1 Hz), 7.21 (s, I H), 7.41 (bs, I H), 8.09 (d, I H, Jis 2.1 Hz), 8.53 (d, I H, Jis 2.0 Hz)  9 5 2.56 (s, 3 H), 4.85 (d, 2 H, Jis 4.3 Hz), 7.21 (s, I H), 7.40 (bs, I H), 7.78 (d, I H, Jis 2.1 Hz), 8.40 (d, I H, Jis 2.0 Hz)  20 5 1.57 (d, 3 H, Jis 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, I H), 7.19 (s, I H), 7.30 (bd, I H), 7.76 (d, I H, Jis 2.0 Hz), 8.39 (d, I H, Jis 2.1 Hz)  21 5 1.56 (d, 3 H, Jis 6.6 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, I H), 7.18 (s, I H), 7.24 (m, I H), 7.45 (bd, I H), 8.12 (d, I H, Jis 2.6 Hz)  22 6 1.57 (d, 3 H, Jis 6.6 Hz), 5.7 (m, I H), 7.35 (d, I H, Jis 5.2 Hz), 7.35 (bs, I H), 8.24 (d, I H, Jis 1.6 Hz), 8.33 (d, I H, Jis 5.4 Hz), 7.45 (bd, I H), 8.12 (d, I H, Jis 2.6 Hz), 8.32 (d, I H, Jis 5.5 Hz), 7.35 (bs, I H), 8.24 (d, I H, Jis 1.6 Hz), 8.33 (d, I H, Jis 5.4 Hz), 8.64 (d, I H, Jis 5.2 Hz), 7.35 (bs, I H), 8.24 (d, I H, Jis 5.4 Hz), 8.64 (d, I H, Jis 5.2 Hz), 7.30 (d, I H, Jis 5.3 Hz), 7.91 (d, I H, Jis 2.0 Hz)  25 6 1.60 (d, 3 H, Jis 6.6 Hz), 5.7 (m, I H), 7.75 (d, I H, Jis 5.2 Hz), 7.79 (d, I H, Jis 2.1 Hz), 8.04 (d, I H, Jis 5.3 Hz), 7.4 (bs, I H), 7.75 (d, I H, Jis 5.2 Hz), 7.79 (d, I H, Jis 2.1 Hz), 8.04 (d, I H, Jis 5.3 Hz), 8.41 (d, I H, Jis 2.0 Hz)  26 6 1.60 (d, 3 H, Jis 6.8 Hz), 5.7 (m, I H), 7.75 (d, I H, Jis 5.2 Hz), 7.79 (d, I H, Jis 2.1 Hz), 8.04 (d, I H, Jis 5.3 Hz), 5.7 (m, I H), 7.75 (d, I H, Jis 5.9 Hz), 7.79 (d, I H, Jis 2.1 Hz), 8.04 (d, I H, Jis 5.3 Hz), 5.7 (m, I H), 7.75 (d, I H, Jis 7.9 (m, I H), 7.9 (m, I H), 8.2 (m, I H), 8.2 (m, I H), 8.2 (m	14	
8.06 (d, 1 H, J is 1.7 Hz), 8.61 (d, 1 H, J is 1.7 Hz)  8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz)  8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 1.9 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  8 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.6 Hz)  21 8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.34 (d, 1 H, J is 5.2 Hz), 8.30 (d, 1 H, J is 5.1 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  24 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 6.4 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  25 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  8 1.66 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.75 (m, 1 H), 7.9 (m, 1 H), 8.0 (s, 1 H), 8.20 (m, 1 H), 8.10 (m, 1 H), 8.20 (m, 1		
8 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz), 8.62 (d, 1 H, J is 1.6 Hz) 8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz) 8 5 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 2.0 Hz) 8 6 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz) 8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.6 Hz) 21 8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz) 22 8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz) 23 6 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 8.30 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 8.04 (d, 1 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.2 Hz), 7.91 (d, 1 H, J is 2.0 Hz) 24 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.50 (d, 1 H, J is 2.0 Hz) 25 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.3 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz) 26 8 1.60 (d, 3 H, J is 6.8 Hz), 5.7 (m, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H), 8.01 (s, 1 H), 8.40 (s, 1 H), 8.05 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H), 8.00 (s, 1 H), 8.00 (s, 1 H), 8.00 (s, 1 H), 8.0	15	δ 1.57 (d, 3 H, J is 7.2 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.3 (bd, 1 H, J is 8.2 Hz),
8.62 (d, 1 H, J is 1.6 Hz)  6 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz),  8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz),  8.53 (d, 1 H, J is 1.9 Hz)  6 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz),  8.40 (d, 1 H, J is 2.0 Hz)  20		
8 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz), 8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  8 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  20 8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  21 8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)  23 6 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.1 Hz), 8.64 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  26 8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  27 8 1.60 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.75 (m, 1 H), 7.9 (m, 1 H), 7.9 (m, 1 H), 8.20	16	δ 2.56 (s, 3 H), 4.82 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.4 (bs, 1 H), 8.07 (d, 1 H, J is 1.9 Hz),
8.35 (d, 1 H, J is 5.5 Hz), 8.53 (d, 1 H, J is 2.0 Hz)  8 2.56 (s, 3 H), 4.80 (d, 2 H, J is 4.1 Hz), 7.21 (s, 1 H), 7.41 (bs, 1 H), 8.09 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.9 Hz)  8 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  21		
18	17	δ 4.82 (d, 2 H, J is 4.3 Hz), 7.36 (d, 1 H, J is 5.5 Hz), 7.47 (bs, 1 H), 8.09 (d, 1 H, J is 2.0 Hz),
8.53 (d, 1 H, J is 1.9 Hz)  19		
<ul> <li>δ 2.56 (s, 3 H), 4.85 (d, 2 H, J is 4.3 Hz), 7.21 (s, 1 H), 7.40 (bs, 1 H), 7.78 (d, 1 H, J is 2.1 Hz), 8.40 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)</li> <li>δ 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)</li> <li>δ 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)</li> <li>δ 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)</li> <li>δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H)</li> </ul>	18	
8.40 (d, 1 H, J is 2.0 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22 8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)  23 8 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)  24 8 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  25 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  26 8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  27 8 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H), 8.01 (s, 1 H), 8.40 (s, 1 H), 8.159 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),		
<ul> <li>δ 1.57 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.19 (s, 1 H), 7.30 (bd, 1 H), 7.76 (d, 1 H, J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)</li> <li>δ 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)</li> <li>δ 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)</li> <li>δ 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)</li> <li>δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)</li> <li>δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H)</li> </ul>	19	
J is 2.0 Hz), 8.39 (d, 1 H, J is 2.1 Hz)  8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)  8 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)  24 8 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  25 8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  26 8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  8 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)  8 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),		
8 1.56 (d, 3 H, J is 7.4 Hz), 2.54 (s, 3 H), 3.86 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.24 (m, 1 H), 7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  8 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)  8 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)  8 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  8 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)  8 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	20	
7.4 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz)  22		
<ul> <li>δ 1.57 (d, 3 H, J is 6.6 Hz), 3.87 (s, 3 H), 5.7 (m, 1 H), 7.27 (m, 1 H), 7.33 (d, 1 H, J is 5.4 Hz), 7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)</li> <li>δ 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)</li> <li>δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)</li> <li>δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H)</li> </ul>	21	
7.45 (bd, 1 H), 8.12 (d, 1 H, J is 2.6 Hz), 8.32 (d, 1 H, J is 5.2 Hz)  8 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)  8 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  8 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) 8 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	22	
<ul> <li>δ 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.35 (d, 1 H, J is 5.5 Hz), 7.35 (bs, 1 H), 8.24 (d, 1 H, J is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)</li> <li>δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)</li> <li>δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H)</li> </ul>	22	
is 1.6 Hz), 8.33 (d, 1 H, J is 5.4 Hz), 8.64 (d, 1 H, J is 1.7 Hz)  δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	22	
<ul> <li>δ 4.84 (d, 2 H, J is 4.3 Hz), 7.4 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.92 (d, 1 H, J is 1.9 Hz), 8.04 (d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)</li> <li>δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H)</li> </ul>	23	
(d, 1 H, J is 5.2 Hz), 8.50 (d, 1 H, J is 2.0 Hz)  25 δ 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  26 δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  27 δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	•	
8 1.60 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.3 (bd, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 7.91 (d, 1 H, J is 2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  8 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  8 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) 8 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	24	
2.0 Hz), 8.03 (d, 1 H, J is 5.1 Hz), 8.50 (d, 1 H, J is 1.9 Hz)  δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz),  8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)  δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)  δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	25	
<ul> <li>δ 4.86 (d, 2 H, J is 4.3 Hz), 7.46 (bs, 1 H), 7.75 (d, 1 H, J is 5.2 Hz), 7.79 (d, 1 H, J is 2.1 Hz), 8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz)</li> <li>δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H)</li> <li>δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),</li> </ul>	23	
8.04 (d, 1 H, J is 5.3 Hz), 8.41 (d, 1 H, J is 2.0 Hz) 27 δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) 28 δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),	26	
27 δ 1.6 (d, 3 H), 5.7 (m, 1 H), 7.4 (bs, 1 H), 7.7 (m 1 H), 7.8 (m, 1 H) 8.01 (s, 1 H), 8.40 (s, 1 H) 8 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),		
28 δ 1.59 (d, 3 H, J is 5.8 Hz), 5.7 (m, 1 H), 7.3 bs, 1 H), 7.5 (m, 1 H), 7.9 (m, 1 H), 8.2 (m, 1 H),		
0.1. July 1.7.1)	28	
		(ת ז אוו) כייים

10

Cmpd No.	<sup>1</sup> H NMR Data (300mHz; CDCl <sub>3</sub> solution unless indicated otherwise) <sup>8</sup>
29	δ 1.58 (d, 3 H, J is 6.8 Hz), 2.36 (s, 3 H), 5.7 (m 1 H), 7.13 (d, 1 H, J is 5.0 Hz), 7.2 (bd, 1 H),
	7.91 (d, 1 H, J is 1.9 Hz), 8.25 (d, 1 H, J is 5.1 Hz), 8.48 (d, 1 H, J is 1.9 Hz)
30	8 1.60 (d, 3 H, J is 6.7 Hz), 5.7 (m, 1 H), 7.3 (bs, 1 H), 7.73 (d, 1 H, J is 5.3 Hz), 8.02 (d, 1 H, J is
	5.0 Hz), 8.08 (d, 1 H, J is 2.1 Hz), 8.53 (d, 1 H, J is 1.8 Hz)
31	δ 1.59 (d, 3 H, J is 6.5 Hz), 5.7 (m, 1 H), 7.4 (bd, 1 H), 7.70 (m, 1 H), 7.89 (d, 1 H, J 5.2 Hz), 8.08
	(d, 1 H, J is 2.0 Hz), 8.53 (d, 1 H, J is 1.8 Hz)
32	δ 1.58 (d, 3 H, J is 6.6 Hz), 2.55 (s, 3 H), 5.7 (m, 1 H), 7.18 (s, 1 H), 7.29 (bd, 1 H), 8.07 (d, 1 H,
	J is 1.9 Hz), 8.51 (d, 1 H, J is 2.1 Hz)
33	δ 1.58 (d, 3 H, J is 6.6 Hz), 5.7 (m, 1 H), 7.4 (bd, 1 H), 7.70 (d of d, 1 H, J is 0.9, 52. Hz), 7.91
	(m, 2 H), 8.50 (d, 1 H, J is 2.1 Hz)
34	$\delta$ : 1.58 (d, J = 6.6 Hz, 3H), 5.72 (m, J = 6.6 Hz, 1H), 7.33 (d, J = 5.2 Hz, 1H), 7.38 (broad s,
	1H), $7.93$ (d, $2.1$ Hz, $1$ H), $8.33$ (d, $J = 5.2$ Hz, $1$ H), $8.42$ (d, $J = 2.1$ Hz, $1$ H).
35	$\delta$ : 4.80 (d, $J = 5$ Hz, 2H), 7.35 (d, $J = 5.5$ Hz, 1H), 7.49 (broad S, 1H), 8.24 (d, $J = 1.9$ Hz, 1H),
	8.35 (d, $J = 5.5$ Hz, 1H), 8.66 (d, $J = 1.9$ Hz, 1H).
36	8: 1.58 (d, $J = 6.6$ Hz, 3H), 5.69 (m, $J = 6.6$ Hz, 1H), 7.33 (d, $J = 5.2$ Hz, 1H), 7.36 (broad s,
	1H), 8.24 (d, 1.7 Hz, 1H), 8.33 (d, $J = 5.2$ Hz, 1H), 8.64 (d, $J = 1.7$ Hz, 1H).
37	δ; 1.57 (d, 3 H, J is 6.5 Hz), 5.7 (m, 1 H), 7.4 (bd, 1 H), 7.47 (m, 1H), 7.91 (d, 1 H, J is 2.0 Hz),
20	8.09 (m, 1 H), 8.49 (d 1 H, J is 2.1 Hz)
38	8; 1.58 (d, 3 H, J is 6.5 Hz), 5.7 (m, 1 H), 7.4 (bd, 1 H), 7.46 (d, 1 H, J is 5.5 Hz), 7.77 (d, 1 H, J
10	is 2.0 Hz), 8.09 (d, 1 H, J is 5.4 Hz), 8.40 (d, 1 H, J is 2.1 Hz)
39	8: 1.58 (d, 3 H, J is 6.6 Hz), 5.65 (m, 1 H), 7.4 (bd, 1 H), 7.46 (m, 1 H), 8.1 (m, 2 H), 8.52 (d, 1 H,
40	J is 2.1 Hz) $\delta$ ; 2.55 (s, 3H), 4.81 (d, J = 4.5 Hz, 2H), 7.20 (s, 1H), 7.51 (broad S, 1H), 7.94 (d, J = 2.1 Hz,
40	1H), 8.42 (d. J = 2.1 Hz, 1H).
41	$\delta$ ; 1.57 (d, $J = 6.7$ Hz, 3H), 2.54 (s, 3H), 5.73 (m, $J = 6.7$ Hz, 1H), 7.18 (s,1H), 7.33 (broad d,
71	1H), 7.93 (d, 2.1 Hz, 1H), 8.41 (d, $J = 2.1$ Hz, 1H).
42	$\delta$ : 2.55 (s, 3H), 4.78 (d, $J = 4.3$ Hz, 2H), 7.20 (s, 1H), 7.46 (broad S, 1H), 8.23 (d, $J = 1.8$ Hz,
72	1H), 8.65 (d, $J = 1.8$ Hz, 1H).
43	$\delta$ : 1.57 (d, $J = 6.5$ Hz, 3H), 2.54 (s, 3H), 5.68 (m, $J = 6.5$ Hz, 1H), 7.18 (s,1H), 7.34 (broad d,
	1H), 8.23 (d, 1.8 Hz, 1H), 8.64 (d, J = 1.8 Hz, 1H).
_	· · · · / · · · · · · · · · · · · · · ·

a 1H NMR data are in ppm downfield from tetramethylsilane. Couplings are designated by (s)-singlet, (d)-doublet, (t)-triplet, (q)-quartet, (m)-multiplet, (dd)-doublet of doublets, (dt)-doublet of triplets, (br s)-broad singlet.

#### **BIOLOGICAL EXAMPLES OF THE INVENTION**

General protocol for preparing test suspensions: Test compounds are first dissolved in acetone in an amount equal to 3% of the final volume and then suspended at the desired concentration (in ppm) in acetone and purified water (50/50 mix) containing 250 ppm of the surfactant Trem<sup>®</sup> 014 (polyhydric alcohol esters). The resulting test suspensions are then used in the following tests. Spraying a 200 ppm test suspension to the point of run-off on the test plants is the equivalent of a rate of 500 g/ha.

#### TEST A

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore dust of *Erysiphe graminis* f. sp. tritici, (the causal agent of wheat powdery mildew) and incubated in a growth chamber at 20 °C for 7 days, after which disease ratings were made.

10

15

20

25

30

35

44

#### TEST B

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore suspension of *Puccinia recondita* (the causal agent of wheat leaf rust) and incubated in a saturated atmosphere at 20 °C for 24 h, and then moved to a growth chamber at 20 °C for 6 days, after which disease ratings were made.

#### TEST C

The test suspension was sprayed to the point of run-off on rice seedlings. The following day the seedlings were inoculated with a spore suspension of *Pyricularia oryzae* (the causal agent of rice blast) and incubated in a saturated atmosphere at 27 °C for 24 h, and then moved to a growth chamber at 30 °C for 5 days, after which disease ratings were made.

#### TEST D

The test suspension was sprayed to the point of run-off on tomato (or potato) seedlings. The following day the seedlings were inoculated with a spore suspension of *Phytophthora* infestans (the causal agent of potato and tomato late blight) and incubated in a saturated atmosphere at 20 °C for 24 h, and then moved to a growth chamber at 20 °C for 5 days, after which disease ratings were made.

#### TEST E

The test suspension was sprayed to the point of run-off on grape seedlings. The following day the seedlings were inoculated with a spore suspension of *Plasmopara viticola* (the causal agent of grape downy mildew) and incubated in a saturated atmosphere at 20 °C for 24 h, moved to a growth chamber at 20 °C for 6 days, and then incubated in a saturated atmosphere at 20 °C for 24 h, after which disease ratings were made.

#### TEST F

Potato seedlings are inoculated with a spore suspension of *Phytophthora infestans* (the causal agent of potato and tomato late blight) and incubated in a saturated atmosphere at 20 °C for 24 h. The next day, test suspension is sprayed to the point of run-off and the treated plants are moved to a growth chamber at 20 °C for 5 days, after which disease ratings are made.

#### TEST G

Grape seedlings are inoculated with a spore suspension of *Plasmopara viticola* (the causal agent of grape downy mildew) and incubated in a saturated atmosphere at 20 °C for 24 h. The next day, test suspension is sprayed to the point of run-off and the treated plants are moved to a growth chamber at 20 °C for 6 days, and then incubated in a saturated atmosphere at 20 °C for 24 h, after which disease ratings are made.

Results for Tests A-G are given in Table A. In the table, a rating of 100 indicates 100% disease control and a rating of 0 indicates no disease control (relative to the controls). A dash (-) indicates no test results.

			Table A				
Cmpd No.	Test A	Test B	Test C	Test D	Test E	Test F#	Test G
1	0	38	0	100	99	87	100
2	0	19	0	100	100	93	100
3	. 0	19	-	100	95	88	100
4	0	9	-	100	70	100	100
5	0	0	-	100	70	100	99
6	0	0	-	100	70	100	99
7	Ō	45	-	100	100	100	100
8	0	0	-	100	100	100	36
9	0	9	-	100	88	99	99
10	0	. 0	-	99	57	0	0
11	0	0	-	100	100	93	100
12	0	0	-	100	59	98	63
13	0	68	-	100	100	100	100
14	0	41	-	100	100	98	100
15	0	0	-	100	100	70	100
16	Ŏ	. 32		100	100	83	95
17	Ö	-	-	100	99	73	98
18	0	•	-	100	100	77	100
19	Ō	-	-	99	100	0	100
20	Ö	_	-	100	100	53	100
21	Ö	-	-	99	100	53	77
22	. 0	-	-	100	100	98	94
23	Ō	-	-	100	100	98	96
24	Ö	-	-	100	100	0	84
25	0	_	•	100	100	0	72
26	0	-	-	100	81	0	99
27	0	-	-	100	100	0	100
28	0	-	-	99	100	100	100
29	0	-	-	99	100	57	94
30	0	-	-	100	100	44	93
31	0	-	-	100	100	79	100
32	Ō	-	-	100	100	82	99
33	Ó	-	-	100	. 100	100	100
34	Ó	-	-	100	100	99	100
35	Ō	-	-	100#	99+	96	50+
36	0		•	100#	100*	92	92+
37	Ō	_	•	100	100	100	100
38	Ŏ	-	-	100	100	100	100
39	Ŏ	-	•	100	100	100	100
40	Ö	_	<u>.</u> .	100	100	95	99
41	Ö	_	•	100	100	97	100
42	0	_	_	100	100	93	100
43	Ö	-	-	100	100	90	100
#100 g/ha o		edlings	*rate 100 g/ha				
" I OO EY HA O	- pount so	Bu					

Synergism has been described as "the cooperative action of two components (e.g. component (a) and component (b)) of a mixture, such that the total effect is greater or more prolonged than the sum of the effects of the two (or more) taken independently" (see Tames, P. M. L., Neth. J. Plant Pathology, 1964, 70, 73-80). It is found that compositions

containing the compound of Formula I and fungicides with a different mode of action exhibit synergistic effects.

The presence of a synergistic effect between two active ingredients is established with the aid of the Colby equation (see Colby, S. R. In Calculating Synergistic and Antagonistic Responses of Herbicide Combinations, Weeds, 1967, 15, 20-22):

$$p = A + B - \begin{bmatrix} A \times B \\ 100 \end{bmatrix}$$

Using the methods of Colby, the presence of a synergistic interaction between two active ingredients is established by first calculating the predicted activity, p, of the mixture based on activities of the two components applied alone. If p is lower than the experimentally established effect, synergism has occurred. In the equation above, A is the fungicidal activity in percentage control of one component applied alone at rate x. The B term is the fungicidal activity in percentage control of the second component applied at rate y. The equation estimates p, the fungicidal activity of the mixture of A at rate x with B at rate y if their effects are strictly additive and no interaction has occurred.

The following TESTS can be used to demonstrate the control efficacy of compositions of this invention on specific pathogens. The pathogen control protection afforded by the compounds is not limited, however, to these species.

Test suspensions comprising a single active ingredient are sprayed to demonstrate the control efficacy of the active ingredient individually. To demonstrate the control efficacy of a combination, (a) the active ingredients can be combined in the appropriate amounts in a single test suspension, (b) stock solutions of individual active ingredients can be prepared and then combined in the appropriate ratio, and diluted to the final desired concentration to form a test suspension or (c) test suspensions comprising single active ingredients can be sprayed sequentially in the desired ratio.

_	•
٠,	

5

10

15

20

Composition 1	
Ingredients	Wt.%
Compound 2 Technical Material	20
Polyethoxylated stearyl alcohol	15
Montan wax ester	3
Desugared calcium lignosulfate	2
Polyoxypropylene-polyoxyethylene block copolymer	1
Propylene Glycol	6.4
Polyorganosiloxanes + emulsifying agent	0.6
19% (1,2-benzisothiazolin-3-one) in aqueous dipropylene glycol	0.1
Water	51.9
Composition 2	
Ingredients	Wt.%
Compound 3 Technical Material	20

Polyethoxylated stearyl alcohol

Montan wax ester

15

47

Desugared calcium lignosulfate	2
Polyoxypropylene-polyoxyethylene block copolymer	1
Propylene Glycol	6.4
Polyorganosiloxanes + emulsifying agent	0.6
19% (1,2-benzisothiazolin-3-one) in aqueous dipropylene glycol	0.1
Water	51.9

Composition 4

Ingredients	Wt. %
Famoxadone Technical Material	51.7
Sodium lignosulfate	36.0
Sodium alkylnaphthalene sulfonate	2.0
Polyvinyl pyrrolidone	4.0
Polyoxypropylene-polyoxyethylene block copolymer	3.0
Sodium dodecylbenzene sulfonate	3.0
Fluomalkyl acid mixture	0.3

Composition 5

Ingredients	Wt. %
Cymoxanil Technical Material	61.9
Sodium alkylnaphthalene sulfonate formaldehyde condensate	5.0
Sodium alkylnaphthalene sulfonate	1.0
Polyvinyl pyrrolidone	4.0
Monosodium phosphate	4.0
Furnaric acid	1.0
Fumed silica	1.0
Sodium	0.2
Sugar	14.0
Sodium lignosulfate	7.9

Test compositions were first mixed with purified water containing 250 ppm of the surfactant Trem ® 014 (polyhydric alcohol esters). The resulting test suspensions were then used in the following tests. Test suspensions were sprayed to the point of run-off on the test plants at the equivalent rates of 5, 10, 20, 25, 50 or 100 g/ha of the active ingredient. Spraying a 40 ppm test suspension to the point of run-off on the test plants is the equivalent of a rate of 100 g/ha. The tests were replicated three times and the results reported as the average of the three replicates.

#### TEST H (Preventive Control of Phytophthora infestans)

The test suspensions were sprayed to the point of run-off on Potato seedlings. The following day the seedlings were inoculated with a spore suspension of *Phytophthora* infestans (the causal agent of tomato and potato late blight) and incubated in a saturated atmosphere at 20°C for 24 h, and then moved to a growth chamber at 20°C for 5 days, after which disease ratings were made.

#### TEST I (Curative Control of Phytophthora infestans)

Potato seedlings were inoculated with a spore suspension of *Phytophthora infestans* (the causal agent of tomato and potato late blight) 24 hours prior to application and incubated in a saturated atmosphere at 20 °C for 24 h. The test suspensions were then

sprayed to the point of run-off on the potato seedlings. The following day the seedlings were moved to a growth chamber at 20 °C for 5 days, after which disease ratings were made.

## TEST J (Extended Preventive Control of Phytophthora infestans)

The test suspensions was sprayed to the point of run-off on potato seedlings. Six days later, the seedlings were inoculated with a spore suspension of *Phytophthora infestans* (the causal agent of tomato and potato late blight) and incubated in a saturated atmosphere at 20 °C for 24 h, and then moved to a growth chamber at 20 °C for 5 days, after which disease ratings were made.

Results for Tests H-J are given in Table B. In the table, a rating of 100 indicates 100% disease control and a rating of 0 indicates no disease control (relative to the controls). Columns labeled Avg indicates the average of three replications. Columns labeled Exp indicate the expected value for each treatment mixture using the Colby equation. Tests demonstrating control greater than expected are indicated with \*.

		<u>Table</u>	A		•		
Composition		Test	H	<u>Tes</u>	<u>t I</u>	Tes	IJ
Number	Rate	Avg	Exp	Avg	Exp	<u>Avg</u>	<u>Exp</u>
1	5	0	хX	0	хx	0	XX
1	10	72	ХX	0	ХX	21	XX
1	20	97	ХX	0	ХX	47	XX
2	5	0	ХX	0	ХX	0	XX
2	10	47	ХX	0	xx	32	XX
2	20	100	ХX	Ó	XX	82	XX
3	25	100	ХX	0	ХX	0	XX
3	50	100	ХX	0	ХX	0	XX
3	100	100	xx	0	xx	0	XX
4	25	0	xx	0	ХX	0	ХX
4	50	0	XX	0	xx	0	ХX
4	100	32	ХX	0	ХX	0	XX
1 + 3	5 + 25	100	100	0	0	9	0
1+3	10 + 50	100	100	0	0	9	21
1+3	20 + 100	98	100	0	0	76*	47
1 + 4	5 + 25	0	0	0	0	21*	0
1+4	10 + 50	32	72	9	0	77*	21
1 + 4	20 + 100	100	98	29*	0	65*	47
2 + 3	5 + 25	100	100	0	0	69*	0
2 + 3	10 + 50	100	100	0	0	72*	32
2 + 3	20 + 100	100	100	0	0	99*	82
2 + 4	5 + 25	24	0	0	0	9	0
2 + 4	10 + 50	98+	47	0	0	75*	32
2 + 4	20 + 100	100	100	9	0	99*	82

Based on the description of synergism developed by Colby, compositions of the present invention are illustrated to be synergistically useful. Moreover, compositions comprising components (a) and (b) alone can be conveniently mixed with an optional diluent prior to applying to the crop to be protected. Accordingly, this invention provides an improved method of combating fungi, particularly fungi of the class Oomycetes such as *Phytophthora* spp. and *Plasmopara* spp., in crops, especially potatoes, grapes and tomatoes.

#### **CLAIMS**

What is claimed is:

- 1. A composition for controlling plant diseases caused by fungal plant pathogens comprising:
- (a) at least one compound of Formula I, N-oxides and agriculturally suitable salts thereof

$$(R^5)_{\overline{m}} \underbrace{\begin{pmatrix} 4 \\ N \end{pmatrix}_{R^1}}_{R^2} \underbrace{\begin{pmatrix} 3 \\ N \end{pmatrix}}_{N} \underbrace{\begin{pmatrix} 4 \\ 1 \end{pmatrix}}_{N} \underbrace{\begin{pmatrix} 5 \\ 1 \end{pmatrix}}_{N} (R^6)_{n}$$

wherein

5

10

15

20

25

R1 and R2 are each independently H or C1-C6 alkyl;

each R<sup>5</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylthio, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>8</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>6</sub> dialkylaminocarbonyl or C<sub>3</sub>-C<sub>6</sub> trialkylsilyl;

each R<sup>6</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylthio, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>6</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub> alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>8</sub> dialkylaminocarbonyl or C<sub>3</sub>-C<sub>6</sub> trialkylsilyl; and

m and n are independently 1, 2, 3 or 4; and

- (b) at least one compound selected from the group consisting of
- (b1) alkylenebis(dithiocarbamate) fungicides;
- (b2) compounds acting at the  $bc_1$  complex of the fungal mitochondrial respiratory electron transfer site;
  - (b3) cymoxanil;
  - (b4) compounds acting at the demethylase enzyme of the sterol biosynthesis pathway;

20

25

35

- (b5) morpholine and piperidine compounds that act on the sterol biosynthesis pathway;
- (b6) phenylamide fungicides;
- (b7) pyrimidinone fungicides;
- (b8) phthalimides; and
- (b9) fosetyl-aluminum.
- 2. The composition of Claim 1 wherein the weight ratio of component (b) to component (a) is from 9:1 to 4.5:1.
  - 3. The composition of Claim 2 wherein component (b) is cymoxanil.
- 4. The composition of Claim 2 wherein component (b) is a compound selected from 10 (b1).
  - 5. The composition of Claim 4 wherein component (b) is mancozeb.
  - 6. The composition of Claim 2 wherein component (b) is a compound selected from (b2).
    - 7. The composition of Claim 6 wherein component (b) is famoxadone.
- 15 8. The composition of Claim 1 wherein component (b) comprises at least one compound from each of two different groups selected from (b1), (b2), (b3), (b4), (b5), (b6), (b7), (b8) and (b9).
  - 9. The composition of Claim 8 wherein component (b) comprises at least one compound selected from (b1) and at least one compound selected from (b2), (b3), (b6), (b7), (b8) or (b9); wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30; and wherein the weight ratio of component (b1) to component (a) is from 10:1 to 1:1.
  - 10. The composition of Claim 8 wherein component (b) comprises at least one compound selected from (b2) and at least one compound selected from (b1), (b3), (b6), (b7), (b8) or (b9); wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30; and wherein the weight ratio of component (b2) to component (a) is from 10:1 to 1:1.
  - 11. The composition of Claim 8 wherein component (b) comprises cymoxanil and at least one compound selected from (b1), (b2), (b6), (b7), (b8) or (b9); wherein the overall weight ratio of component (b) to component (a) is from 30:1 to 1:30; and wherein the weight ratio of cymoxanil to component (a) is from 10:1 to 1:1.
  - 12. A method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of a composition of Claim 1.
  - 13. The method of Claim 12 wherein the disease to be controlled is caused by the fungal pathogen *Phytophthora infestans*.
  - 14. The method of Claim 12 wherein the disease to be controlled is caused by the fungal pathogen *Plasmopara viticola*.

15. A compound of Formula I, including all geometric and stereoisomers, N-oxides and agriculturally suitable salts thereof:

wherein

5

10

15

20

R<sup>1</sup> and R<sup>2</sup> are each independently H or C<sub>1</sub>-C<sub>6</sub> alkyl;

each R<sup>5</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>8</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub> alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>8</sub> dialkylaminocarbonyl or C<sub>3</sub>-C<sub>6</sub> trialkylsilyl;

each R<sup>6</sup> is independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>2</sub>-C<sub>6</sub> haloalkenyl, C<sub>2</sub>-C<sub>6</sub> haloalkynyl, C<sub>3</sub>-C<sub>6</sub> halocycloalkyl, halogen, CN, CO<sub>2</sub>H, CONH<sub>2</sub>, NO<sub>2</sub>, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, C<sub>1</sub>-C<sub>4</sub> alkylthio, C<sub>1</sub>-C<sub>4</sub> alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> haloalkylthio, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfinyl, C<sub>1</sub>-C<sub>4</sub> haloalkylsulfonyl, C<sub>1</sub>-C<sub>4</sub> alkylamino, C<sub>2</sub>-C<sub>6</sub> dialkylamino, C<sub>3</sub>-C<sub>6</sub> cycloalkylamino, C<sub>2</sub>-C<sub>6</sub> alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub> alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub> alkylaminocarbonyl, C<sub>3</sub>-C<sub>8</sub> dialkylsilyl; provided that at least one R<sup>6</sup> is iodo; and

m and n are independently 1, 2, 3 or 4.

#### (19) World Intellectual Property Organization International Bureau



## 

# (43) International Publication Date 2 October 2003 (02.10.2003)

**PCT** 

# (10) International Publication Number WO 2003/080576 A3

(51) International Patent Classification<sup>7</sup>: C07D 213/82, A01N 43/40

(21) International Application Number:

PCT/US2003/008179

(22) International Filing Date: 18 March 2003 (18.03.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/365,765

19 March 2002 (19.03.2002) US

(71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).

(71) Applicant and

(72) Inventor: FOOR, Stephen, Ray [US/US]; 508 Hemingway Drive, Hockessin, DE 19707 (US).

(74) Agent: HEISER, David, E.; E.I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, DE 19805 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
  - of inventorship (Rule 4.17(iv)) for US only

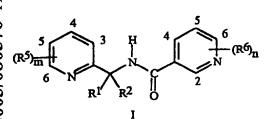
#### Published:

— with international search report

(88) Date of publication of the international search report:
25 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PYRIDINYL AMIDES AND COMPOSITIONS THEREOF FOR USE AS FUNGICIDES



(57) Abstract: Compositions for controlling plant diseases caused by fungal plant pathogens are described, comprising:(a) at least one compound of Formula I, including all geometric and stereoisomers, N-oxides and agriculturally suitable salts thereof: (I) wherein  $R^1$ ,  $R^2$ ,  $R^5$  and  $R^6$ , m and n are as defined in the disclosure; and(b) at least one compound selected from the group consisting of (b1) alkylenebis(dithiocarbamate) fungicides; (b2) compounds acting at the  $bc_1$  complex of the fungal mitochondrial respiratory electron transfer site; (b3) cymoxanil; (b4) compounds acting at the demethylase enzyme of the sterol biosyn-

thesis pathway; (b5) morpholine and piperidine compounds that act on the sterol biosynthesis pathway; (b6) phenylamide fungicides; (b7) pyrimidinone fungicides; (b8) phthalimides; and (b9) fosetyl-aluminum. Also disclosed are methods for controlling plant diseases caused by fungal plant pathogens that involves applying an effective amount of the combinations described. Also disclosed are certain novel compounds of Formula I.

2003/080576 A3



		***
A CLASSIE	CO7D213/82	MATTER ,
M. CLASSIII	0070012/02	A01N43/40
IPC 7	(.0/0213/82	MOTIMAN 40

According to international Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7  $\,$  CO7D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	ENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the	relevant passages	Relevant to claim No.
<b>Y</b> .	WO 01 11966 A (AVENTIS CROPSCIE EKWURU TENNYSON (FR); PETTINGER 22 February 2001 (2001-02-22) cited in the application page 4, line 26 - line 31 page 5, line 13 - line 15 pages 14-16, table A; page 22, page 24, table C; page 26, table 27, table E, pages 29-32, table page 33, line 18 -page 34, line claims	table B; le D; page	1–15
		-/	
	urther documents are listed in the continuation of box C.	Patent family members are lists  "T" tater document published after the li	temational filing data
"A" docur con: "E" earlie filing "L" docur with cita "O" docur oth	categories of cited documents:  ment defining the general state of the art which is not sidered to be of particular relevance or document but published on or after the international g date ment which may throw doubts on priority ctalm(s) or ch is cited to establish the publication date of another library or the referring to an oral disclosure, use, exhibition or er means unment published prior to the international filing date but are than the priority date claimed	of priority date and not in control of the control	theory underlying the e claimed invention not be considered to document is taken alone to claimed invention to inventive step when the more other such docu- vious to a person skilled ent family
	he actual completion of the international search	Date of mailing of the international	search report
	2 October 2003	10/10/2003	
Name a	nd mailing address of the ISA  European Patent Office, P.B. 5818 Patentiaan 2  NL – 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,	Authorized officer Hass, C	



-	Intentional Application No
	PCT/US 03/08179

		PC1/US U3/U81/9
C-(Continue	tion) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relavant passages	Relevant to ctairn No.
Y	WO 99 42447 A (MOLONEY BRIAN ANTHONY; SAVILLE STONES ELIZABETH ANNE (GB); AGREVO) 26 August 1999 (1999-08-26) page 4, line 21 - line 27 page 5, line 7 - line 9 table 1, especially compounds 60, 62, 195-199, 202-216 page 32, line 1 - line 26 claims 1-4	1-15
Ρ,Χ	WO 02 22583 A (PIOTROWSKI DAVID WALTER; WALKER MICHAEL PAUL (US); DU PONT (US)) 21 March 2002 (2002-03-21) page 19, line 23 -page 83 page 90, line 10 - line 34 page 91, line 35 -page 92, line 24 claims	1-14
		,
:		

## IMPERNATIONAL SEARCH REPORT

Information on patent family members

In pni	Application No
PCT/US	03/08179

				1	
Patent document ted in search report		Publication date		Patent family member(s)	Publication date
		22-02-2001	AU	6840600 A	13-03-2001
10 0111966	Α	22-02-2001	BR	0013367 A	07-05-2002
			CN	1370046 T	18-09-2002
			WO	0111966 A	-:
			WO EP	1204322 A	
			JP	2003506466 T	18-02-2003
					2 08-08-2002
NO 9942447	Α	26-08-1999	AU	751032 B	1000
· · <del>-</del> · · ·			ΑU	2527199 A	0001
			BR	9908007 A	1000
			CA	2319005 A	
			CN	1291187 T	
			CZ	20002993 A	
			EP	1056723 A	
			WO	9942447 A	
			HU		30-07-2001
			JP	2002503723 1	
			NO	20004159 A	
			NZ	505954 A	20-12-2002
			PL	342376 A	
			SI	20356 <i>l</i>	
			SK		A3 12-03-2001
			TR		T2 21-11-2000
			TR	FOOTOTO	T2 21-06-2002
			ÜS	6503933	
			ZA	9901292	A 13-09-1999
		21-03-2002	AU	1123302	A 26-03-2002
WO 0222583	Α	21-03-2002	BR	0114122	A 01-07-2003
			EP	1322614	